ANNUAL PROGRESS REPORT

2020-21

RAJMATA VIJAYARAJE SCINDIA KRISHI VISHWA VIDYALAYA
RAJA PANCHAM SINGH MARG, GWALIOR-474002 (M.P.)

Mission

To impart education, conduct research and extension activities for enhancing productivity, optimization of profit, sustainability of agriculture and allied sectors and improving rural livelihood in the state of Madhya Pradesh.

Vision

To transform the Agricultural landscape of Madhya Pradesh by producing excellent dynamic and result oriented skilled human resource in modern Agriculture, thereby creating higher income, employment, gender equity, accessibility, sustainable production system and achieving social welfare for all.

Mandate

- *To serve as a centre of higher education in the field of agriculture and allied sciences.*
- *To conduct basic, strategic, applied and anticipatory research in the field of agriculture and allied sciences.*
- *To disseminate technologies to farmers, extension personnel and organizations engaged in agricultural development through various extension programmes.*
- *To produce and supply of genuine and quality seed/planting material to the farmers.*

वार्षिक प्रगति प्रतिवेदन

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Patron : Prof. S. K. Rao
Vice-Chancellor
R.V.S.K.V.V., Gwalior (M.P.)

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Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya,
Gwalior-474002 (M.P.)

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//FOREWORD//

It gives me an immense pleasure to present the Annual Report of the Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya (RVSKVV) for the year 2020-21 to the end users. This report highlights the activities related to education, research and extension carried out by the University staff in the field of agricultural and allied sciences with a focus on enhancing livelihood status of the farming community. The University has developed credible technology in the field of agriculture and Horticulture. Farmers of the State are being benefited through its network of five colleges (four Agriculture and one Horticulture), five Zonal Agricultural Research Stations (ZARS), four Regional Agricultural Research Stations (RARS), six Special Research Stations (SRS), nineteen Krishi Vigyan Kendras (KVKs) and twenty-eight All India Coordinated Research Projects (AICRPs).

Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya has grown into a diverse innovative institution of higher education, pursuing excellence in the fields of teaching, research and extension in agricultural sciences. Over the years, the University has sought to make a major contribution in improving the quality of human life in the region through its research-led initiatives in agriculture, environmental related issues and a host of other modern-day challenges including the production of quality seed and genuine planting material. The structure of its activities is rationalized, with emphasis on its distinguished strengths, management of education and development of quality man power and in this direction notable success has been achieved. In addition to the diverse activities related to agricultural sciences, RVSKVV has strong emphases on farmer's skills improvement and empowerment through the nineteen KVKs in the various districts. Teaching and learning quality has been steadily improving in recent years and a large number of capable man powers has been trained here.

In case of research programme, University finds a very special place in NARS through the coordinated projects in pulses, oil seeds, cotton, cereals, horticulture and natural recourses management. Exceptional research work on chickpea improvement, CMS based pigeon pea hybrid, efficient water management for boosting the productivity of other major crops like cotton, soybean, mustard, wheat, medicinal and aromatic plants are some of the noteworthy

contributions of the University. RVSKVV is also making sincere efforts to generate cutting edge technologies for enhancing crop productivity was done by the University. Thrust is also given on seed replacement in the state by producing quality seeds of important crops.

The Extension activities viz., trainings, demonstrations, field days, study tours, Kishan Mela, Krishi Goshtis and other farm advisory services were carried out to help the farming community of the region to solve their farm related problems. Biodiversity fair cum exhibition and awareness programme was one of the mega events which served as a platform for integration of farmers and Scientist on bio diversity conservation and display the biodiversity available in the M.P. and Chhattisgarh.

The students' performance in academic, sports and cultural events was impressive. The faculty of teaching, non-teaching and farm laborers joined their hands in fulfilling the mandate of the University.

I express my sincere gratitude to the Government of Madhya Pradesh, the ICAR and Government of India for their continued financial support. The contribution of the Members of the statutory bodies like the Board, the Academic Council and the Administrative Council in smooth functioning of the University has been praise worthy. The contribution of all the Deans, Directors, Heads, Registrar and Comptroller of the University in providing relevant information for the Annual Report is acknowledged.

Present Annual Report 2020-21, brought out by the University, covers the development and progress made in the areas of teaching, research & extension and seed production. It is my firm belief that this Annual Report will aptly serve as a show case of the activities of the University. It will be a good reference for administrators, policy makers, staff, students and even the farming community. I would like to thank all the contributors, members of the Editorial Board and Compilation Committee for compiling and editing this report in a comprehensive and presentable form.

(S.K. Rao)

CONTENTS

	5.6	Technology Transmitted through Electronic Media	
	5.7	Kisan Mobile Advisory Services	
	5.8	SAC Meetings	
	5.9	Exhibitions	
	5.10	News Letters Published	
	5.11	Publications of KVKs	
	5.12	Activities of Directorate of Extension Services	
	5.13	5.13.1 Training Programmes Organized by Directorate	
		5.13.2 Workshops/ Meetings Organized by Directorate	
		5.13.3 Collaborative Programmes	
		5.13.4 Publications of Directorate	
6.	**LIBRARY AND DOCUMENTATION SERVICES**		
7.	**INFRASTRUCTURE DEVELOPMENT**		
8.	**GENERAL ADMINISTRATION AND FINANCE**		
9.	**IMPORTANT EVENTS**		
10.	**HUMAN RESOURCE DEVELOPMENT**		
11.	**AWARDS AND RECOGNITIONS**		
12.	**VISITS ABROAD**		
13.	**DISTINGUISHED VISITORS**		
14.	**PUBLICATIONS:** Research papers/Abstract (Presented & Published)/Books/Book chapters/Teaching Manual/Popular articles etc.		

EXECUTIVE SUMMARY

Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, (RVSKVV) Gwalior (MP) was established on August 19, 2008. The University has been since then, catering to the multi farming needs of farming community Agriculture Development, ICAR and other stockholders. It is a new, but fast emerging promising University in the field of agriculture and allied sciences.

The mandate of the University is teaching, research and extension with a view to evolve appropriate solutions and technologies in the field of agriculture. It has a network of five colleges (four Agriculture and one Horticulture), five Zonal Agricultural Research Stations (ZARS), four Regional Agricultural Research Stations (RARS), six Special Research Stations (SRS), twenty one Krishi Vigyan Kendras (KVKs) and twenty-eight All India Coordinated Research Projects (AICRPs) spread across six agro-climatic zones in twenty-six districts of Madhya Pradesh. In addition to this, other ongoing projects/schemes *i.e*. non-plan, plan, tribal sub-plan and adhoc projects are also in operation.

During the year 2020-21, the University has undertaken a number of initiatives for the promotion of quality in its mandated areas. The major activities and achievements of the University are as follows:

TEACHING:

- *The University offers two Under Graduate Courses i.e. B.Sc. (Hons.) Agriculture and B.Sc. (Hons.) Horticulture, 13 Post Graduate degree and 9 Ph.D. degree programmes in the different disciplines of Agriculture and Horticulture. The total intake capacity was 774 out of which, 364 were in undergraduate (UG), 356 in postgraduate (PG) and 54 in Ph.D. degree programme.*
- *During the year 2020-21, a total of 1387 boys and 776 girls' (Total Students-2163) students were on the roll of the University, out of which, 875 boys and 490 girls were in UG, 448 boys and 229 girls in PG, and 59 boys and 58 girls were in Ph.D. degree programmes.*
- *In Ph.D., 20 students submitted their thesis to the Director Instructions for evaluation. 167 students submitted Thesis for Post graduate degree program in Agriculture disciplines and 53 students for Horticulture degree programme.*
- *In Experiential learning programme, 251 students of fourth year (B.Sc. Ag. and B.Sc. Hort.) have taken adequate hands-on experience on different aspects of Agriculture/Horticulture to cultivate capabilities suitable to the emerging job markets and build entrepreneurship spirit and business management competence in a way that they will be able to generate employment for themselves and for others.*

- *The modules of experiential learning programme namely Crop Production, Crop Protection, Horticulture, Nursery Production and Management, Protected cultivation of high value vegetable crops, Floriculture & Landscape Gardening, Mashroom Cultivation and Value addition in horticultural crops are running successfully.*
- *Under Rural Agriculture/Horticulture Work Experience 316 students of Fourth Year were placed in different villages of Research Stations/KVKs to learn and solve the practical problems of the farmers of adopted villages.*
- *02 Students of the University qualified the JRF examination.*
- *57 Students of the University received National Talent Scholarship (NTS).*
- *During the year, 415 students of the University have received State Government Scholarship, out of which 237 students belonged to OBC, 84 SC and 94 ST categories.*
- *Under NSS (National Service Scheme) programme, different activities like blood donation camp, Beti Bachao Abhiyan, Social Awareness Camp, Awareness about AIDS, Literacy, Pulse Polio Abhiyan, Mera Gaon Mera Gourav and Environment Day were organized. 17 students were awarded "B" Certificate and 01 student "C" Certificate examination of NSS.*
- *Under National Cadet Corps (NCC) programme, 19 Cadets passed "B" certificate examination and 42 cadets cleared "C" certificate examination.*
- *Through campus interviews, 09 students have been placed in jobs in leading private sectors, 34 students in Government/public sector and 07 self employed.*
- *Through different libraries of the constituent Colleges, 1, 47, 104 books were procured and available to the students out of which 557 books have been purchased during the reporting year. Apart from that, reports, thesis, CDs, 139 e-books, periodicals etc. are also available in the library of constituent Colleges of the University.*
- *In central library total 10341 printed books, 139 e-books, 07 printed magazines, 1303 gifted books, 15 priented journal and 52 E-magazines were available in Central library of VishwaVidhyalaya.*
- *126 research papers were published in peer reviewed journals of national and international repute.*

RESEARCH:

- *Evaluation of IVT (Extra early) entries result revealed that out 9 entries No entries ware found resistant against fusarium udaum in wilt sick plot. Wilt % ranges from 27.1 % to 80.8 %. In the susceptible check ICP-2376 wilt incidence was 95.5 %. Only Two entries were recorded moderate resistance reaction (10-30%) against wilt. LSI was 59.36 % of IVT (Extra early) entries in the wilt sick plot.*
- *Evaluation of IVT (Medium duration) entries result revealed that out 40 entries 4 entries viz AAUVT-13-20, BAUP-16-01, GJP-1606, JGP-1801 etc. showed resistant against fusarium udaum in wilt sick plot. Wilt % ranges from 4.06 % to 95.5 %. In the susceptible check ICP-2376 wilt incidence was 95.5 %. Only Eleven entries were recorded moderate resistance reaction (10-30%) against wilt. LSI was 29.38 % of IVT (MD) entries in the wilt sick plot.*
- *Evaluation of IVT (Late duration) entries result revealed that out 10 entries only 2 entries viz BAHAR, MA-6 etc. showed moderately resistant against fusarium udaum in wilt sick plot. Wilt % ranges from 11 % to 86 %. In the susceptible check ICP-2376 wilt incidence was 95.5 %. No entry was recorded resistance reaction (0-10%) against wilt. LSI was 39.49 % of IVT Lat duration entries in the wilt sick plot.*
- *Evaluation of IVT (Mid early) entries result revealed that out 17 entries only 1 entries ICPL-17116 showed resistant against fusarium udaum in wilt sick plot. Wilt % ranges from 3.3 % to 85.1 %. In the susceptible check ICP-2376 wilt incidence was 95.5 %. Only 4 entry ware recorded moderate resistance reaction (10-30%) against wilt. LSI was 48.23 % of IVT mid early entries in the wilt sick plot.*
- *Evaluation of IVT (Early) entries result revealed that out 15 entries No entries showed resistant against fusarium udaum in wilt sick plot. Wilt % ranges from 28.8 % to 91.3 %. In the susceptible check ICP-2376 wilt incidence was 95.5 % only one entries was recorded moderate resistance reaction (10-30%) against wilt. LSI was 53.92 % of IVT Early duration entries in the wilt sick plot.*
- *Evaluation of AVT I & II (Early, Mid early, late duration) entries result revealed that out 22 entries 3 entries WRG-122, MAL-50, DA-15-1 showed resistant against fusarium udaum in wilt sick plot. Wilt % ranges from 0 % to 95.5 %. In the susceptible check ICP-2376 wilt incidence was 95.5 %. 3 entries were recorded moderate resistance reaction (10-30%) against wilt. LSI was 41.30 % of AVT Mid Early Medium & Late duration entries in the wilt sick plot.*

- *Evaluation of Donors entries result revealed that out 22 entries 10 entries viz. BSMR-74, BSMR-79, BSMR-316, BSMR-553, BSMR-736, BSMR-853, BWR-164, IPA-9F, KPL-43 showed resistant against fusarium udaum in wilt sick plot. Wilt % ranges from 3.1 % to 86.2 %. In the susceptible check ICP-2376 wilt incidence was 95.5 %. 6 entries ware recorded resistance reaction (10-30%) against wilt. LSI was 26.99% of Hybrid & Donors entries in the wilt sick plot.*
- *Evaluation of SVT entries result revealed that out 8 entries 5 entries viz, RVKT-332, RVKT-319, RVKT-324, RVKT-325, RVKT-326 showed resistant against fusarium udaum in wilt sick plot. Wilt % ranges from 3.14 % to 24.62 %. 3 entries were recorded moderate resistance reaction (10-30%) against wilt.*
- *Monitoring of races/strains of Fusarium udum in sick plot through host plant differentials results revealed that differentials ICP-8859, ICP-7035 showed Moderately resistant reaction against fusarium udaum wilt of Pigeonpea in wilt sick plot ranges from 21.9 (ICP-8859) to 89.01 % (ICP-2376) Results indicated that existence two variants (1 & 3) of fusarium udaum prevalent in the region.*
- *Survey was conducted in the 29 villages of Nimar Zone and it is observed that incidence of wilt was low with medium duration varieties like JKM-189, ASHA, TJT-501 (Medium early) and other varieties of private sector whether grown as sole crop or in cropped with Soybean, Cotton, Mungbean, Maize etc. On the Contrary higher wilt incidence were observed with local cultures in sole crop as well as in intercrop with cotton. However it is relevant to mention here that this year (2019-20) received the rainfall of 1215.11 mm which is below average.*
- *Pigeonpea Wilt and Sterility Mosaic Disease Nursery results revealed that out of 45 entries 31 entries were reported resistant (below 10%) against fusarium udum in wilt sick plot, wilt ranges from 0 % to 39.2 % .In susceptible check ICP2376 wilt incidence was 95.5 % and LSI was 8.83 %.*
- *In evaluation of AVT II entries under different row spacing, entry JS 20-34 gave significantly higher yield sown at 30 cm row sowing (1560 kg/ha). While entry AMS 100-39 was better at 45 cm row spacing.*
- *In system intensification for soybean productivity augmentation, variety RVS 24 gave better yield when planted at 45X 15 cm plant geometry. Whereas, variety JS 20-34 gave significantly higher yield, planted at 45X5cm plant geometry.*

- *The MACARENA a biostimulent tested with herbicides. All tested herbicides were comptable with MACARENA. The weeds were controllled effectively with pre emergence applicaation of premix herbicide sodium aciflurofen (16.5%) + clodinafop propragyl (8%EC) @100 ml/ha with MACARENA.*
- *In evaluation of partial factor productivity of soybean, maximum reduction in grain yield was obtained when weed management practice was ommitted from full package. Whereas, minimum reduction was recorded in treatment ommission of insect management practices.*
- *In front line demonstrations, improved production technology increased soybean yield on an average 39.97 % over farmer's practice.*
- *The application of AMF@6kg/ha along with PGPR (penaebasillus Polymixa@20g/kg) seed treatment was found to increase significantly higher nodule number, it's dry weight,/plant at 50% flowering stage together with grain yield and legheamoglolobin content in fresh nodule compared to farmer's practice.*
- *The inoculation of B deogense @5g culture/kg seed treatment was found beneficial and gave the higher nodulation traits (Nodule number and it's dry weight at 50% flowering stage) It's application was also fond beneficial to enhance significantly higher nitrogen, phosphorous contents, chlorophyll content and relative water content over rest of the treatments.*
- *Among the AVT second entries, the NRC 86, NRC 131, JS 97-52 and JS 335 were found suitable to give better nodulating ability (nodule number, their dry weight) legheamoglolobin content in fresh nodules in vertisol.*

SEED PRODUCTION:

- *The University is producing breeder and nucleus seeds of several crops, which is has contribution significant in enhancing seed replacement and increasing productivity of crops.*
- *The seed production in the University is carried out in twenty seven seed production farms. The total farm area is 1210.85 ha., out of which 64.45 per cent (780.37 ha.) is under cultivation. Among the cultivated area, 13.39, 34.59 and 52.02 per cent are covered under irrigated, partially irrigated and rain fed farming, respectively.*
- *The university produced 6895.50 quintal seed of different crops. During Kharif 2020-21 total production of 2151.00 q. seed has been produced under different crops like – Soybean, Green gram, Black gram, Paddy, Cotton, pigeonpea and during Rabi 2020-21 a total of 4744.50 q. seed has been produced under of different Rabi crops like Wheat, Chickpea, Lentil, Mustard and Safflower etc.*

EXTENSION ACTIVITIES:

- *For the assessment of latest technologies generated by RVSKVV, other universities or ICAR institutes of ICAR, 453 On Farm Trials (OFTs) were conducted at farmers' field on various thematic areas related to crops, animals, machineries, post harvest management etc. that benefitted 6183 farmers.*
- *For the purpose of popularizing new technologies, Front Line Demonstrations (FLDs) were carried out on various crops in area of 1159.20 ha on the fields of 505 farmers. In addition to these demonstrations, 2875 FLDs on different enterprises like fisheries, live stock management, vermicompost, value addition, post harvest management, malnutrition, farm machinery etc. were also conducted.*
- *During the year 2020-21 total 1951 trainings were imparted, which benefited 50211 participants including farmers and farm women, rural youth, extension personnel and government officials.*
- *In order to create awareness among farmers of the region, 20029 extension activities were conducted by the KVKs including Farmers' fairs, Farmers meeting, Field days, Exhibitions, Special days celebration were organized which benefited 502095 farmers.*
- *A total number of 67 Abstract, 19 Booklets, 06 Books, Book Chapter 32, 24 Training Manuals, 16 Electronic Media Show (CD/VCD), Technical Bulletin 29 and 70 Research Papers in Journal were prepared by Krishi Vigyan Kendras. KVK Scientists also published 83 popular articles in various agriculture magazine and news papers.*
- *A total number of 41087 soil samples were analysed by different KVKs, State Govt. and 11486 soil health cards were prepared and distributed to farmers of the region.*
- *Under Kisan Mobile Advisory Services, 1439 messages related to new technologies were sent to 131096 beneficiaries of 22699 villages.*
- *'Mera Gaon Mera Gaurav' programme is being implemented by the Vishwa Vidyalaya through its five colleges and three Zonal Agricultural Research Stations. In this programme, the scientists regularly organizing Krishak Sangoshthies, Demonstrations and advising farmers abut recent agricultural technologies in the selected villages.*

Srimant Rajmata Vijayaraje Scindia
(1919-2001)

1. INTRODUCTION

1. Mission:

- To impart education, conduct research and extension activities for enhancing productivity, optimization of profit, sustainability of agriculture and allied sectors and improving rural livelihood in the state of Madhya Pradesh.

2. Mandate:

- To serve as a centre of higher education in the field of agriculture and allied sciences.
- To conduct basic, strategic, applied and anticipatory research in the field of agriculture and allied sciences.
- To disseminate technologies to farmers, extension personnel and organizations engaged in agricultural development through various extension programmes.
- To produce and supply of genuine seed and planting material to the farmers.

3. Area of Jurisdiction:

RVSKVV, Gwalior is responsible for Agricultural Education, Research and Extension in following 27 revenue districts of the state:
Sheopur, Morena, Bhind, Gwalior, Shivpuri, Guna, Ashoknagar, Datia, Dewas, Shajapur, Agar Malwa, Ujjain, Indore, Dhar, Jhabua, Alirajpur, Ratlam, Mandsaur, Neemuch, Khargone, Badwani, Khandwa, Burhanpur, Bhopal, Sehore, Aron and Rajgarh.

The area under University jurisdiction is a part of the Deccan Plateau and comprises plateaus with mean elevation of 1600 feet above mean sea level; inter spread with the mountains of the Vindhya and Satpura ranges. The maximum height of 1350 m is recorded in Satpura range on the other hand 150 m height is found in Chambal Valley. The main river systems are the Betwa, Chambal, Narmada, Sindh and Tapti. Nearly one third of the state area is covered with tropical forest. The area contains three types of soils, varying from alluvial to medium and heavy black Vertisols with six agro climatic zones.

The geographical area of the state under the University jurisdiction is 137.16 lakh hectares out of this, 74.72 lakh hectares is under cultivation, 24.51 lakh hectares under Kharif and 36.45 lakh hectare under rabi fallow. Out of the total cultivated area,

49.42% is irrigated. However, the area under irrigation varies from as low as 18.85% in Jhabua district to as high as 75.63% in Datia district.

The economy of the area is primarily agriculture based. Nearly 75% population is engaged in agriculture. The Malwa region abounds in rich black cotton soil. The low lying areas of Gwalior and Bundelkhand have light soils, whereas the Narmada Valley is formed by deep rich alluvial deposits.

4. Climatic Conditions:

The overall climate varies from semiarid to sub humid with hot summer; cool and dry winter with an average annual rainfall ranging from 600 to1000 mm. Mean annual rainfall is 1029.21mm.

In general, aberrant monsoon behavior is a common feature in the region that usually creates abnormal weather conditions including long dry spells of 8-20 days duration in the middle of the season.

5. Agro Climatic Zones

Out of 11 agro climatic zones of the state, following six are under the jurisdiction of RVSKVV, Gwalior:

- Gird Zone
- Malwa Plateau
- Nimar Valley
- Jhabua Hills
- Vindhya Plateau (Partial)
- Bundelkhand Zone (Partial)

6. Major Crops and Cropping Pattern

- The main food crops of the area are wheat, rice, mustard, lentil and millets. Important among commercial crops grown in the area are pulses, oil seeds and medicinal crops. The state is poised for a breakthrough in soybean cultivation.
- The area coverage of soybean, groundnut and cotton under the jurisdiction of the University is 69, 66 and 55 per cent, which contributes to about 68, 67 and 56 per cent in total production of these crops in the state respectively. Chickpea, pea, black gram and wheat contributes about 35, 24, 54 and 48 per cent of the total state production from an area of only 20, 05, 46 and 40 per cent, respectively. The productivity of these crops in the region is higher than the state average.
- Area under horticultural crops is showing an increasing trend under the University jurisdiction. Mandarin, sweet oranges and limes under assured irrigation and guava, ber, aonla and custard apple without irrigation in Gird region, orange, grape, chiku, mosambi and acid lime in Malwa plateau; banana, papaya, lime and chiku in Nimar valley and lime, ber, guava, aonla and custard apple in Jhabua hills bloom well. Vegetables like Tomato, Potato, Sweet potato, Brinjal, Okra, Cole crops (Cabbage, Cauliflower), Drumstick, Radish, Carrot, Cucurbits, Arbi, Beans and Leafy vegetables etc. are grown in large acrage. Among the spice crops, turmeric, corriander, ajwain, chillies, garlic, fenugreek and fennel have their own specialties in different agro-climatic zones. The area coverage under seasonal flowers is also showing an increasing trend.

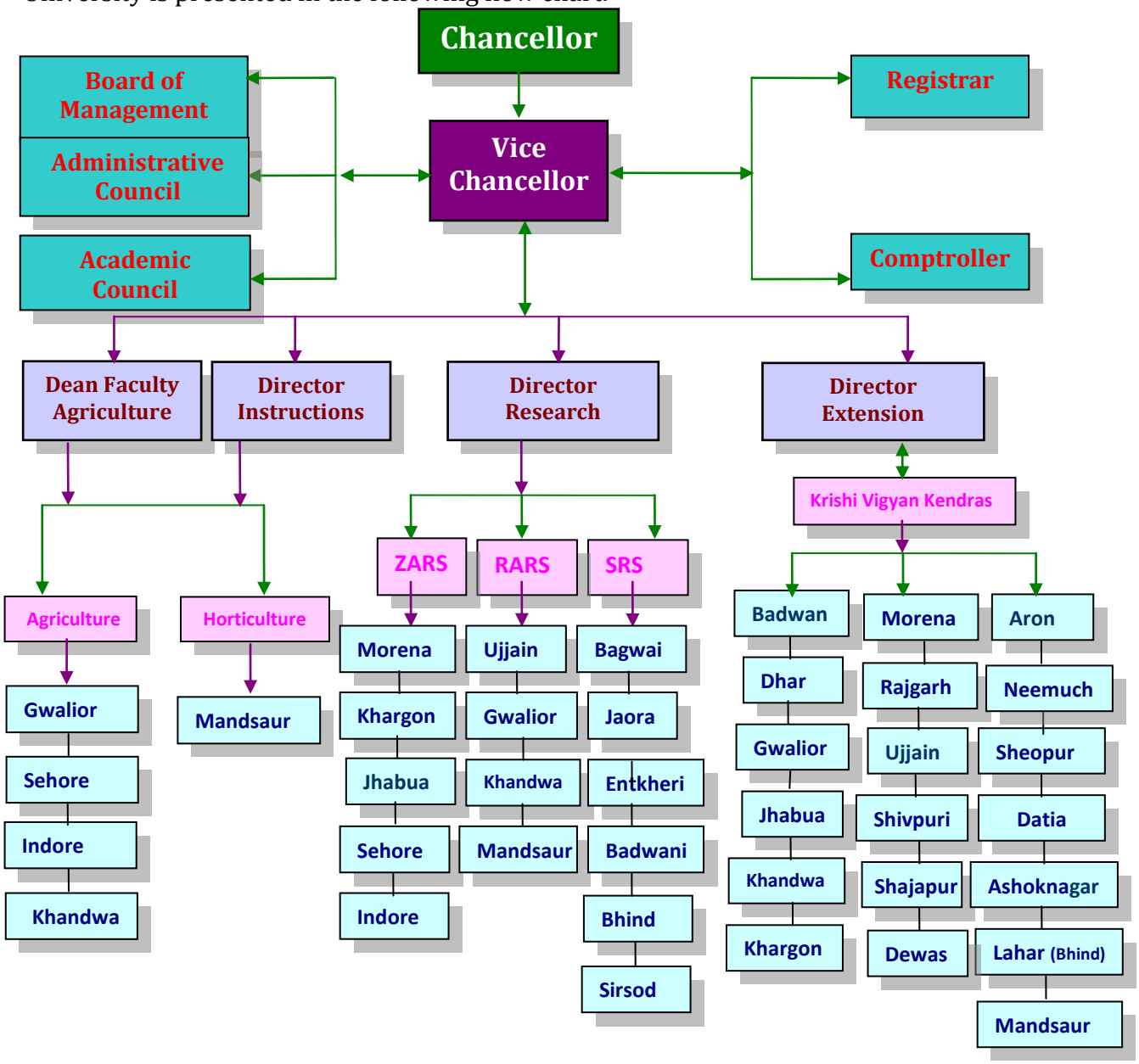
7. Organizational Setup:

Hon'ble Governor of Madhya Pradesh is the Chancellor of the University, and Vice-Chancellor is the Academic Head and Chief Executive of the University, who is supported by the following authorities:

- *Board of Management*
- *Academic Council*
- *Administrative Council*

The University comprises of Faculty of Agriculture headed by Faculty Dean. The constituent colleges are headed by respective Deans. Heads of the Departments are the key persons for teaching, research and extension of the respective discipline/department. Committee of Faculty of Agriculture and Extension Council are also constituted by Vishwa Vidyalaya.

Director Instructions, Director Research Services and Director Extension Services are responsible University authorities for human resource development, research activities and extension activities, respectively. Registrar and Comptroller support the Vice-Chancellor in administration and financial matters. The organizational setup of the University is presented in the following flow chart.



2. ACADEMIC HIGHLIGHTS:

Academic excellence is the backbone of every institute of higher learning. The responsibility increases many folds when the institute aspires for generating world class graduates with the competence to stand tall as a nation builder.

It is through the dissemination of latest technologies and changing knowledge from the global prospective to grass root level that the desirable development in the broad area of agriculture can be attained. The demanding trends in Agriculture/Horticulture need an increase in faculties in such fields and disciplines which have a tremendous market value so that the products of the University are not inclined to government jobs only but would be able to involve themselves in a variety of fields that can boost economy at the State and National level. Therefore resident instruction programme is carried out in the areas of Agriculture and Horticulture in four Agriculture colleges and one Horticulture College in the University.

2.1 Profile of the Colleges:

Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya offers undergraduate, post graduate and Ph.D. programmes in the faculty of Agriculture. At present, the University has four Colleges of Agriculture and one college of Horticulture under the faculty of Agriculture. Four constituent Colleges of Agriculture are located at Gwalior, Indore, Sehore and Khandwa and one College of Horticulture is located at Mandsaur.

All these colleges offer Under Graduate and Masters Degree Programmes in different disciplines. Ph.D. programme is offered only at College of Agriculture, Gwalior.

The list of colleges with their location, year of establishment and degree programmes offered is given below.

RAJMATA VIJAYARAJE SCINDIA KRISHI VISHWA VIDYALAYA, GWALIOR (2008)

CoA, Gwalior (1950)

CoA, Sehore (1952)

CoA, Indore (1959)

CoA, Khandwa (1987)

CoH, Mandsaur (2002)

2.1.1 Details of the Colleges:

S. No.	Name of College with location	Year of Establishment	Degree Programme Offered
I	**Faculty of Agriculture**		
1.	**College of Agriculture, Gwalior**	1950	**(i) B.Sc. (Ag.)** **(ii) M.Sc. (Ag.)** (1) Agronomy (2) Entomology (3) Extension Education (4) Agriculture Economics & Farm Management (5) Plant Breeding and Genetics (6) Plant Pathology (7) Soil Science & Agricultural Chemistry (8) Environmental Science (9) Plant molecular biology & Biotechnology (10) Fruit Science (11) Vegetable Science **(iii) Ph.D.** (1) Agronomy (2) Entomology (3) Extension Education (4) Agriculture Economics & Farm Management (5) Plant Breeding and Genetics (6) Plant Pathology (7) Soil Science & Agricultural Chemistry (8) Fruit Science (9) Vegetable Science
2.	**RAK, College of Agriculture, Sehore**	1952	**(i) B.Sc. (Ag.)** **(ii) M.Sc. (Ag.)** (1) Agronomy (2) Entomology (3) Extension Education (4) Agriculture Economics & Farm Management (5) Plant Breeding and Genetics (6) Plant Pathology (7) Soil Science & Agricultural Chemistry (8) Vegetable Science
3.	**College of Agriculture, Indore**	1959	**(i) B.Sc. (Ag.)** **(ii) M.Sc. (Ag.)** (1) Agronomy (2) Entomology (3) Extension Education (4) Agriculture Economics & Farm Management (5) Plant Breeding and Genetics (6) Plant Pathology (7) Soil Science & Agricultural Chemistry (8) Vegetable Science
4.	**BM, College of Agriculture, Khandwa**	1987	**(i) B.Sc. (Ag.)** **(ii) M.Sc. (Ag.)** Plant Pathology
5.	**KNK, College of Horticulture, Mandsaur**	2002	**(i) B.Sc. (Hort.)** **(ii) M.Sc. (Hort.)** (1) Fruit Science (2) Vegetable Science (3) Plantation, Spices, Medicinal & Aromatic Crops (4) Floriculture & Landscape Architecture

Resident instruction programme is one of the mandates of the University *i.e.* impart education in Agriculture and Horticulture to produce graduates and post graduates ready to face the existing and new challenges in agriculture sector.

The University follows the semester system of education. Completion of a degree programme requires successful study of prescribed courses as approved by the Academic Council of the University. Course contents of all subjects are periodically updated and new courses are occasionally added to the degree requirement to cope up with the challenges of upcoming technologies. The University follows 10 point scale evaluation system approved by ICAR. Individual attention of each and every student is ensured through the advisory system. At Under graduate level, for a group of 5-10 students, one faculty advisor is appointed for each class and at Post-Graduate level, for each student, an advisory committee consisting of 3-4 faculty members is appointed. The teacher/ advisory guide, supervises and monitors the academic performance of his/her advises besides helping them in their personal problems. The advisor also maintains a close contact with parents/guardians of the students and informs them about the progress of their works/performance.

2.2 Admission Procedure

2.2.1 Undergraduate Programmes

Admission in first year of B.Sc. (Hons.) Agriculture/Horticulture is done on the basis of the merit list provided by the Professional Examination Board of the State Government, located at Bhopal. The board conducts a Pre-Agriculture Test (PAT) for B.Sc. (Hons.) Agriculture/Horticulture. The roster for reservation of seats for UG and PG as per provisions made by the State Government for different categories is strictly followed.

All possible efforts are made to fill up all seats of different categories by repeated counseling of the students.

2.2.2 Postgraduate Programmes

Admissions in post graduate programmes are made by the University through joint entrance examination basis. As per merit list, admissions are given to the students in the subject of their choice; subject to the availability of seats. The roster of reservation is also followed for these admissions.

2.2.3 Ph.D. Programmes

Similarly, in Ph.D. programme admission is made through joint entrance examination basis.

2.3 Allocation of Seats and Roster:

During the academic year 2020-21, the total intake capacity was 774 out of which 364 were in undergraduate (UG), 356 in postgraduate (PG) and 54 in Ph.D. degree programme. In the undergraduate level, out of 364 total seats, 308 seats were in B.Sc. (Ag.) and 56 in B.Sc. (Hort.) degree programme. In the post graduate level, out of 364 seats, 260 seats were in M.Sc. (Ag.) and 96 in M.Sc. (Hort.).

Similarly, in Ph.D. programme, out of 54 total seats, 42 seats were in agriculture and 12 were in Horticulture discipline.

2.3.1 Intake Capacity (Degree wise):

S.No.	Faculty	Intake Capacity				Total
		Free seats	Payment seats	NRI	ICAR	
Degree Programmes						
1.	B.Sc. (Hons.) Agriculture	220	44	11	33	308
2.	B.Sc. (Hort.) Horticulture	40	08	02	06	56
	Total	**260**	**52**	**13**	**39**	**364**
1.	M.Sc. (Ag.)	260	-	-	-	260
2.	M.Sc. (Hort.)	96	-	-	-	96
	Total	**356**	-	-	-	**356**
1.	Ph.D. Agriculture	42	-	-	-	42
2.	Ph.D. Horticulture	12	-	-	-	12
	Total	**54**	-	-	-	**54**
	Grand Total	**670**	**52**	**13**	**39**	**774**

2.3.2 Under Graduate: B.Sc. (Ag. /Hort.)

(A) B.Sc. (Ag.)

Allocation of Seats		Boys	Girls	Total
Roster				
Free Seats	General	50	31	**81**
	ST	36	14	**50**
	SC	24	11	**35**
	OBC	44	13	**57**
Payment Seats		48	02	**50**
NRI Seats		-	-	**06**
Nominee/Fellow	ICAR	25	04	**29**
Total		**227**	**75**	**308**

(B.) B.Sc. (Hort.)

Allocation of Seats		Boys	Girls	Total
Roster				
Free Seats	Gen.	14	06	20
	ST	05	03	08
	SC	05	02	07
	OBC	03	02	05
Payment Seats		06	02	08
NRI Seats		-	-	02
Nominee/Fellow	ICAR	04	02	06
Total		**37**	**17**	**56**

2.3.3 Post Graduate: M.Sc. (Ag. /Hort.):

(A) M.Sc. Agriculture/Horticulture

S.No.	Subject	Gwalior	Indore	Sehore	Mandsaur	khandwa	Total
		PG	PG	PG	PG	PG	PG
1	Agronomy	12	12	12	-	-	36
2	Soil Sc. & Agri. Chemistry	12	12	12	-	-	36
3	Entomology	12	12	12	-	-	36
4	Genetics & Plant Breeding	12	12	12	-	-	36
5	Agri. Economics	8	8	8	-	-	24
6	Plant Pathology	12	12	12	-	8	44
7	Plant Bio Technology	08	-	-	-	-	8
8	Environmental Science	4	-	-	-	-	4
9	Extension Education	12	12	12	-	-	36
Total		**92**	**80**	**80**		**8**	**260**
(B) M.Sc. Horticulture							
1	Veg. Science	12	12	12	12	-	48
2	Fruit Science	12	-	-	12	-	24
3	Floriculture & Landscape Architecture	-	-	-	12	-	12
4	Plantation, Spice, Medicinal and Aromatic Crops	-	-	-	12	-	12
	Total	**24**	**12**	**12**	**48**	**-**	**96**

2.3.4 Ph.D. (Ag. /Hort.):

(A) Agriculture:

S.No.	Faculty	Intake Capacity				Total
		Free seats	Payment seats	NRI	ICAR	
1.	Ph.D. Agriculture	28	14	**-**	-	42

(B) Horticulture:

S.No.	Faculty	Intake Capacity				Total
		Free seats	Payment seats	NRI	ICAR	
1.	Ph.D. Horticulture	8	4	**-**	-	12

2.4 Students Strength:

2.4.1 Students Admitted:

S. No.	Degree Programme	No. of Students
1.	B.Sc. (Ag.)	291
2.	B.Sc. (Hort.)	54
Total		**345**
1.	M.Sc. (Ag.)	220
2.	M.Sc. (Hort.)	94
Total		**314**
1.	Ph.D. (Ag. /Hort.)	38
Total		**38**
Grand Total		**697**

2.4.2 **Students Strength at a Glance:** During the year 2020-21, total 2163 students were on the roll of the University, out of which 1365 in UG, 510 in PG and 121 in Ph.D. degree programmes.

S. No.	Degree Programme	No. of Students (2020-21)
1.	B.Sc. (Ag.)	1179
2.	B.Sc. (Hort.)	186
	Total	**1365**
1.	M.Sc. (Ag.)	510
2.	M.Sc. (Hort.)	167
	Total	**677**
1.	Ph.D. (Agri. /Hort.)	**121**
	G. Total	**2163**

2.4.3 **Gender Wise Students Strength:** During the year 2020-21

2.4.4 A total of 1387 boys and 776 girls' (Total Students-2163) students were on the roll of the University, out of which, 875 boys and 490girls were in UG, 448 boys and 229 girls in PG, and 59 boys and 58 girls were in Ph.D. degree programmes.

2.5 Teaching Status:

Completion of a degree programme requires successful study of the courses as approved by the Academic Council. Every student has to study a set of prescribed courses per semester. The semester wise courses offered and total credits covered in different undergraduate and postgraduate degree programmes are given below:

2.5.1 Under Graduate: B.Sc. (Ag. /Hort.)

(A) B.Sc. (Ag.)

B.Sc. (Ag.)	Courses offered (No.)		Total Credits	
	I Sem.	II Sem.	I Sem.	II Sem.
I Year	8	9	20 (14+6)	22 (14+8)
II Year	10	9	26 (15+11)	23 (13+10)
III Year	8	9	20 (13+7)	18 (10+8)
VI Year	5*	6**	20 (0+20)	20 (6+14)
Total	**26**	**33**	**86 (42+45)**	**83 (43+40)**

RAWE/RHWE*, ELP**

(B) B.Sc. (Hort.)

B.Sc. (Hort.)	Courses offered (No.)		Total Credits	
	I Sem.	II Sem.	I Sem.	II Sem.
I Year	11	09	21(13+8)	21(12+9)
II Year	10	09	25(14+11)	23(13+10)
III Year	08	08	19(11+8)	20(12+8)
VI Year	02	02	20(5+15)	20(5+15)
Total	**31**	**28**	**85**(43+42)	**84**(42+42)

2.5.2 Post Graduate: M.Sc. (Ag. /Hort.):

S. No.	Subject/Department	Courses offered (No.)		Total Credits	
		I Sem.	II Sem.	I Sem.	II Sem.
1.	Agronomy	11	09	21 (16+5)	19 (13+6)
2.	Agricultural Economics & Farm Management	10	11	17 (13+4)	22 (14+8)
3.	Entomology	10	11	16 (9+7)	21(13+8)
4.	Extension Education	10	09	18 (12+6)	18 (12+6)
5.	Plant Breeding & Genetics	10	09	20 (13+7)	16 (10+6)
6.	Plant Pathology	11	10	21 (14+7)	19 (12+7)

7.	Soil Science & Agricultural Chemistry	10	09	21 (14+7)	19(13+6)
8.	Fruit Science	10	09	22 (15+7)	16 (10+6)
9.	Vegetable Science	10	09	22 (15+7)	17 (11+6)
10.	Plantation, Spices, Medicinal & Aromatic Crops	10	09	22 (15+7)	17 (11+6)
11.	Floriculture & Landscape Architecture	10	09	22 (15+7)	18 (12+6)

2.5.3 Ph. D. (Ag. /Hort.):

(A) Agriculture:

S. No.	Department	Course offered (No)		Total credits	
		I Sem	II Sem	I Sem	II Sem
1.	Agronomy	09	09	17(13+4)	14 (12+2)
2.	Agricultural Economics & FM	09	09	16 (11+5)	17 (11+6)
3.	Entomology	10	10	15 (11+4)	14 (10+4)
4.	Extension Education	09	09	16 (11+5)	18 (12+6)
5.	Plant Breeding & Genetics	09	09	12 (10+3)	16 (12+4)
6.	Plant Pathology	09	09	17 (11+6)	13 (10+3)
7.	Soil Science & Agricultural Chemistry	09	10	15 (12+3)	17 (14+3)

(B) Horticulture:

S. No.	Department	Course offered (No)		Total credits	
		I Sem	II Sem	I Sem	II Sem
1.	Fruit Science	09	08	17 (11+6)	13 (10+3)
2.	Vegetable Science	10	08	19 (12+7)	13 (10+3)

2.6 Experiential Learning Programme: As per the recommendations of Fifth Dean's Committee that the B.Sc. (Ag.)/B.Sc. (Hort.) graduates must have adequate hands on experience on different aspects of agriculture/horticulture. For this purpose, the experiential learning programme has been introduced in the final year that includes different aspects of horticulture and agriculture.

Modules of Experiential learning programme	Nos. of students
A. B.Sc. (Ag.)	
Module – I Crop Production	**205**
Seed Production Technology	
Remote Sensing, GIS & Land Use Planning	
Integrated Farming System	
Water Management	
Soil Management	
Management of Post Harvest Insect Pests & Diseases	
Module – II Crop Protection	
Integrated Pest & Disease Management	
Management of Post Harvest Insect Pests & Diseases	
Non Insect Pest Management	
Pesticides and Plant Protection Equipments	
Nursery Management of Horticultural Crops	
Integrated Farming System	
Module – III Horticulture	
Commercial Vegetable Production	
Commercial Floriculture	
Nursery Management of Horticultural Crops	
Processing & Value Addition of Horticultural Crops	
Integrated Pest & Disease Management	
Management of Post Harvest Insect Pests & Diseases	
Module IV	
Commercial Vegetable Production	
Nursery Management of Horticulture crops	
Protected cultivation of Horticultural crops and seed production of vegetable and flowers	
Processing and value addition of horticultural and crops	
Integrated Pest and Disease Management	
Mushroom cultivation	
Module V	
Nursery Production and management	
Module VI	
Protected cultivation of high value vegetable crops	
Module VII	
Floriculture & Landscape Gardening	
Module VIII	
Value addition in horticultural crops	
B. B.Sc. (Hort.)	
Module I	46
Nursery production and management	
Module II	
Protected Cultivation of High value horticultural crops	
Module III	
Floriculture and Landscape Gardening	
Module IV	
Post harvest technology and value addition	

GLIMPSES OF EXPERIENTIAL LEARNING PROGRAMME

2.7 Rural Agricultural/Horticultural Work Experience (RAWE/RHWE): As a part of regular curriculum, the final year students of B.Sc. (Ag.) and B.Sc. (Hort.) are placed in rural areas for one semester in selected villages through Krishi Vigyan Kendras (KVKs) working in the region, where each student is attached to one host farmer for practical training with regards to crop production, crop protection, economics and also dynamics of the rural society. Further, some social activities were also performed by the students like sanitation in the village, plantation in the premises of primary and middle schools.

RAWE/RHWE AT A GLANCE

S.No.	Particular	Gwalior	Sehore
1.	**No. of student**	Total Student-63	Total Student-83
2.	**Adopted villages/ KVKs**	Provided home town through Acc. to ICAR COVID-19 guideline	
3.	**Technologies Dessimenated**	• Hybrid Varities of vegetable crops • Water conservation Technology • Seed treatment in Kharif and rabi crops • Known about Azolla unit construction • Plant protection in soybean, ground nut, pigeon pea. and mustard • Soil sampling, • Application of Micro-nutrients • Management Practices of animal husbandry	• Survey of host farmers and villages , • Sowing ofs different crops, • Soil testing, Land preparation • Use of improved seed • Demonstration on seed treatment and other new agriculture technology • Promote different irrigation techniques. Water Management • Increase the use of organic manures, use of recommended dose of fertilizers

S.No.	Particular	Indore	Khandwa	Mandsaur
1.	**No. of student**	Total Student-78	Total Student-46	Total Student-46
2.	**Adopted villages/KVKs**	Provided home town through Acc. to ICAR COVID-19 guideline		
3.	**Technologies Dessimenated**	Nil	• Orientation and survey of village • Agronomical Interventions • Plant Protection Interventions • Soil Improvement Interventions • Fruit and Vegetable Production Interventions • Animal Production Intervention • Extension and Transfer of Technology Activities	• Students experienced about rural livelihood and conditions in relation to agriculture and allied sector like postharvest management, agriculture engineering, animal husbandry, poultry, Dairy etc. including social structure. • Students learnt about cultivation practices of onion, garlic, soybean, moong, urd, cauliflower, cabbage, chilli, tomato, marigold, chrysanthemum, rose, brinjal, okra, beans, chandrasoor, fenugreek, cucumber, mango, guava, citrus and pomegranate etc. • Students learned about integrated nutrient management different horticultural crops. • They learned about raising nursery of different vegetables crops • They learnt about different method of

				seed treatment in various crops. • Students learnt about drip irrigation and sprinkler system in Garlic, pomegranate, onion, citrus other horticultural crops. • They were trained to manage insect pest and diseases in different vegetables, ornamental, fruit and spice crops • Students got experience about harvesting and grading in different horticultural crops like cauliflower, cabbage, tomatoes, chillies, onion, garlic, bottle gourd, fenugreek and other available crops. • Students were skilled for curing in onion and garlic crops. • They developed skill in propagation techniques in different horticultural crops. • Students knew about different sticky traps for management of insects in different crops. • They understand about use and importance of pheromone traps for some lepidopterous pests and lure traps for fruit fliesin different crops. • They have developed communication skill to transfer available agricultural technologies among farmers community. • They have acquainted with on-going extension and rural development programes of state and central government. • Ultimately, they have developed confidence and competence to solve complex agricultural problems

GLIMPSES OF READY (RAWE/RHWE) PROGRAMME

Agro industrial Attachment
Sanchi Milk Coperation

S. No.	Activities performed by students	Photographs
1	**Educational Activities** 1- Water Canal – Lower Goy Project 2- Biogas production (Gobar Gas)”-	 Water Canal – Lower Goy Project  Biogas production (Gobar Gas)” 

2	**Social Activity-** **1.** Village Sali (Bhagsur) Anganwadi **2.** Health centre 3. Tree Plantation Program Organize on the occasion Republic Day 4. Aarogyam Jan swasthya Kendra 5. Anganwadi , Primary and Higher secondary school	  Anganwadi Health centre   Tree Plantation Program  Visited Aarogyam Jan swasthya Kendra

		   Visited Anganwadi , Primary and Higher secondary school
3	**PRA Exercise** 1- Social Mapping 2- Resource Map 3- Seasonal Calendar 4- Time Line 5- Venn Diagram	 Social Map  Resource Map

Students applying Social Mapping technique of PRA

Visit of Soil Testing Laboratory

RAWE Students visiting VERMICOMPOST UNIT in Khargone District

Students participating in Swachhata pakhwadafrom 16 to 31 Dec,2020

Students visiting Balaji Seeds Company Plant Sirpur Khandwa.

Field Preparation

Transplanting of Tomato

Transplanting of Cauliflower

Field Preparation

Cultural Practices in Field

Weeding in Garlic Field

Discussion With Farmer in Chilli Field

Viewing the Problem in Tomato Field

Weed Removal From the Field

Practicing Irrigation by Flood System

Spraying of Insecticide in Tomato

Picking of Marigold Flowers

Picking of Cucumber

Staking in Banana

Spraying in Garlic Field Agaist Thrips

Picking of Guava

Spraying of Insecticide in Marigold Field

Spraying of Insecticide in Fenugreek Field

Picking of Guava

Harvesting of Pea

Transplanting of Cauliflower

Harvesting of Marigold

Cummunity Health Center Visit

Observing Flowering in Opium

Learning Preparation of Plant Cuttings

Assessment of Disease in the Field

2.8 Thesis Submitted:

2.8.1 M.Sc. (Agriculture/Horticulture): 167 Students submitted Thesis for Post Graduate degree programme in Agriculture discipline and 53 students for Horticulture degree programme.

2.8.2 Ph.D. thesis submitted to Director Instruction for evaluation: 20 student's submiteed Thesis for Ph.D. Agriculture / Horticulture degree programme.

2.9 Academic Excellence:

2.9.1 Student Performance in ICAR-JRF/SRF examination and other Scholarship/Stipends:

S. No.	Name of Fellowship/Scholarship	No. of Students 2020-21
1.	Junior Research fellowship received	**2**
2.	JRF qualified and admitted in different Universities of India without fellowship	**-**
3.	SRF Qualified without fellowship	**-**
4.	NET	**-**
5.	National Talent Scholarship	**14**
6.	Scholarship of Vikramaditya Yojna	**-**
7.	Scholarship of Gaon Ki Beti Yojna	**-**
8.	Dr. Shyamaprasad Mukharji Scholarship	**-**
9.	Medhavi Sambal Yojna	**169**
10.	Mukhyamantri Medhavi Vidyarthi Yojana	
11.	Post Metric Scholarship	**415**
	State Government Scholarship	
	(i) OBC	**237**
	(ii) SC	**84**
	(iii) ST	**94**

3. STUDENTS WELFARE ACTIVITIES:

3.1 National Service Scheme (NSS):

S. No.	Activity(s)	No. of Volunteers Participated
1	No. of students enrolled	291
2	No. of students passed/cleared ***'B' certificate examination***	17
3	No. of students passed/cleared ***'C' certificate examination***	1
4	NSS day celebration/Camp	89
5	Blood donation camp	12
6	Pulse polio camp	10
7	AIDs awareness day	98
8	Beti Bachao Abhiyan	105
9	Malnutrition day	35
10	Parthenium eradication day	15
11	Special camp	23
12	Voter ID awareness camp	17
13	State level camp	1
14	Unit camp	-
15	Rastriya Yuva Day	65
16	Sensitization day	115
17	Environment day	50
18	Plantation day	75
19	International Woman's Day	25
20	Awareness Programme	-
21	Pre. RD Camp	-
22	COVID-19 Awareness Programme	98
23	COVID-19 Camp	3
24	National Science Day	1

GLIMPSES OF NSS ACTIVITIES

COVID awareness Programme in Gwalior Mela

International women's day celebration

Expert lectures during camp

Distribution of sanitation kit to farmwomen

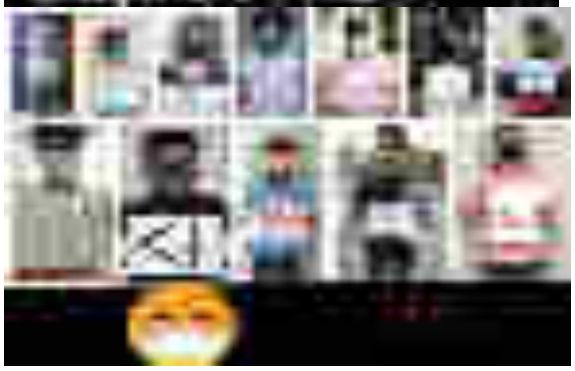
Plantation in Temple Campus


Strret play (Nukkad natak) by Students


Cleanliness near by water resources by the Students


Road Safety Awraeness Rally


Awareness Rally



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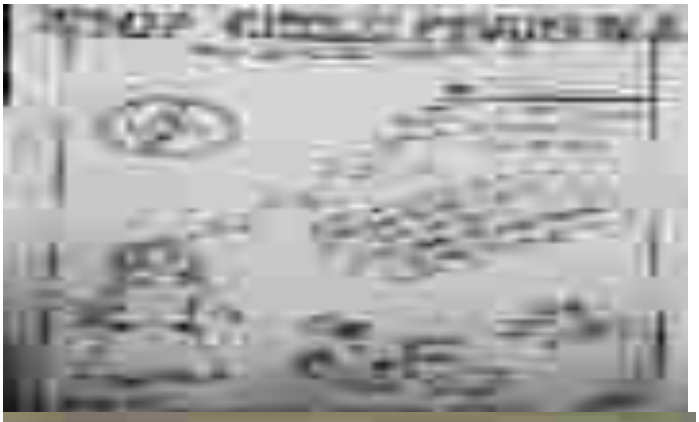
S. No.	Activities of NSS	Photograph &News paper cutting
1.	How to prevent the spread of infection and prevention of Kovid-19 by the first, second and third year students of National Service Scheme Unit of RAK Agricultural College, Sehore. For this, students were made aware by making posters and small videos and posting them on social media.	 **Online Social awareness program of Covid-19 by NSS students**
2.	In view of the scorching heat, students of National Service Scheme Unit of RAK Krishi College, Sehore, kept water containers for birds.	  **SehorePatrikadated 18.04.2020**
3	Poster for the prevention of child rights, child marriage by NSS students under the guidance of NSS Program Officer D. K. Raidas, under Child Protection Week, from 16 to 22 November 2020 by the Child Protection Club students of National Service Scheme Unit of RAK College of Agricultural Sehore, made people aware on social media through poems.	 

HaribhoomiSehore Date 23.11.2020

3.2 National Cadet Corps (NCC):

S. No.	Activity(s)		Total Students
1.	No. of students enrolled		160
2.	Exam. passed	***'B' certificate***	19
		'C' certificate	42
3.	No. of cadets attended the CATC camp		26
4.	Army Attachment at Gwalior		-

Glimpses of NCC activities

3.3 Students Counseling and Placement:

S. No.	Name of employer / Organization	No. of students employed
1.	Central Govt.	16
2.	Government /public sector	18/0
3.	Private sector	9
4.	Self employed	7
Total		**50**

3.4 CULTURAL AND SPORTS ACTIVITIES:

3.4.1 CULTURAL ACTIVITIES

There was not any intercollegiate sport or cultural activity carried out this year due to COVID-19 pandemic situation.

1. Postgraduate student Mr. Saransh Saxena has participated in 14th National Inter-University competition and received the national award for best content in Hindi. The competition was held on-line and conducted by GBPUA&T, Pantnagar.
2. All India –Agriculture & Veterinary Universities cultural and Yoga competition was organized by NDVSU, Jabalpur from 15-17 December 2020, our students has participated in this competition and following students have been awarded:-

S. No.	Name of Student	Name of Events	Position
1	Mr. Gokul Prajapati	Solo Song (Non Filmy)	Second
2	Ku. Jyoti Sengar	Yoga	First

3.5 SPORTS ACTIVITIES: There was not any intercollegiate sport or cultural activity carried out this year due to COVID-19 pandemic situation.

4. RESEARCH HIGHLIGHTS:

The research network of the University spreads over six agro-climatic zones of Madhya Pradesh and covers 26 revenue districts. These agro-climatic zones are Gird, Malwa Plateau, Nimar Valley, Jhabua Hills, Vindhyan Plateau and Bundelkhand zones. Accordingly, five Zonal Agricultural Research stations, four Regional Agricultural Research Stations and five Special Research Stations have been operating to enhance the productivity and livelihood security of farming community. Presently, 27 All India Coordinated Research Projects on crop improvement, natural resource management and horticulture are running at different centers. Besides these, 7 plan, 12 non plan, 23 tribal sub plan, 5 Agromet Advisory services, 05 externally funded projects are the research strength of the University. The maintenance breeding of crop varieties and production of nucleus seed, breeder seed, hybrid seed and planting materials are managed with the help of twenty seven seed farms.

Research Stations of the University

S.No.	Particulars	No.	Location and Year of Establishment
1.	Zonal Agricultural Research Station	05	Indore (1924), Sehore (1952), Khargone (1964), Morena (1981) and Jhabua (1989)
2.	Regional Agricultural Research Station	04	Gwalior (1916), Khandwa (1964) Ujjain (1989) and Mandsaur (1964)
3.	Special Research Station	06	Enthkedi (1962), Jaora (1964), Bagwai (1964), Badwah (1969), Bhind (2010) and Sirsod (2011)

4.1 List of All India Coordinated Research Projects:

S.No.	Name of Projects	Centre
1	AICRP on Water Management	Morena
2	AICRP on Groundnut	Gwalior
3	AICRP on Rapeseed & Mustard	Morena
4	AICRP on Safflower	Indore
5	AICRP on Soybean	Sehore
6	AICRP on Cotton Improvement Project	Khandwa
7	AICRP on Sorghum improvement	Indore
8	AICRP on Chickpea	Sehore
9	AICRP on Pigeonpea	Khargone
10	AICRP on Pearl Millets	Gwalior
11	AICRP on Wheat Improvement Project	Gwalior
12	AICRP on Dryland Agriculture	Indore
13	AICRP on Medicinal and Aromatic Plants	Mandsaur
14	AICRP on Salt Affected Soils	Indore
15	AICRP on Weed Control	Gwalior
16	AICRP on Arid Legumes (Guar)	Gwalior
17	AICRP on Pigeonpea (Sub Centre)	Sehore
18	AICRP on MULLaRP	Sehore
19	AICRP on Integrated Cropping System	Indore
20	AICRP on Fruits (Grape)	Mandsaur
21	AICRP on Chickpea	Indore
22	AICRP on Soybean	Morena

23	AICRP on Onion & Garlic	Mandsaur
24.	ICAR Seed Project on Seed Production in Agricultural Crops	Gwalior

4.2 Research Schemes (Non Plan)

S. No.	Name of Scheme/Project	Centre
1	Agriculture Research Lab & Institute	Indore
2	Regional Research Station	Indore
3	Soil Testing Scheme	Indore
4	Regional Research Station	Sehore
5	Regional Research Station	Gwalior
6	Regional Research Station	Bagwai
7	Intensification of Research on Mango Guava & Citrus	Gwalior
8	Soil Testing Scheme	Gwalior
9	Intensification of Research on Mango, Guava & Citrus	Enthkedi
10	Horticulture Research Scheme (Seed production)	Jaora
11	Sugarcane Research Scheme	Indore
12	Potato Aphid Research	Sehore

Seed Farms (Non Plan)

S. No.	Name of Scheme/Project	Centre
1	Agriculture Research Farm	Mandsaur
2	Agriculture Research Farm	Khargone
3	Agriculture Research Farm	Khandwa
4	Agriculture Research Farm	Bagwai
5	Agriculture Research Farm	Gwalior
6	Agriculture Research Farm	Ujjain
7	Agriculture Research Farm	Jaora
8	Agriculture Research Farm	Indore
9	Agriculture Research Farm	Sehore
10	Live Stock Farm	Gwalior
11	Live Stock Farm	Sehore
12	Live Stock Farm	Indore

4.3 Research Schemes (Plan)

S. No.	Name of Scheme/Project	Centre
1	Fodder Research Scheme	Gwalior
2	Strengthening of MP Agriculture Research Institute	Khargone
3	Productivity Improvement of crops under rainfed area	Indore
4	National Agricultural Research Project	Sehore
5	Director of Extension Education	Sehore
6	National Agricultural Research Project	Ujjain
7	College of Horticulture	Mandsaur

4.4 India Meteorological Department (GOI)

S. No.	Name of Scheme/Project	Centre
1	Agromet Advisory Services	Morena
2	Agromet Advisory Services	Khargone
3	Agromet Advisory Services	Jhabua
4	Agromet Advisory Services	Sehore
5	Agromet Advisory Services	Indore

4.5 Externally Funded Projects

S. No.	Title of the Project	Funding agency	Principal Investigator	Budget (Rs in lakhs)
1	Insecticide Resistance Management: Dissemination of pink bollworm management strategies	ICAR-Central Institute for Cotton Research, Nagpur	Dr S.K.Parsai, Senior Scientist (Entomology), RVSKVV, College of Agriculture, Khandwa	11.47
2.	Validation and Promotion of Location specific Prioritized Component-wise IPM Package in Rapeseed-Mustard	NCIPM, New Delhi	Dr J. C. Gupta, Senior Scientist (Plant Pathology), ZARS Morena	6 .00

S. No.	Title of the Project	Funding agency	Principal Investigator	Budget (Rs in lakhs)
1.	Validation and Promotion of Location specific Prioritized Component-wise IPM Package in Rapeseed-Mustard	NCIPM, New Delhi	J. C. Gupta (PI) Jagendra Singh (Co-PI) Swati Singh Tomar (Co-PI) Zonal Agricultural Research Station, Morena	0.50
2.	Technology dissemination through Frontline demonstration plots MIDH	DSSD, Calicut	Dr K.S.Kirad, KVK, Dhar	44.60
3.	RVSKVV-BARC Collaborative Experiments	BARC, Mumbai	Director Research Sirvices	2.95

Varieties Notified and released - Following varieties have been recommended for Notification by Central Sub-Committee on Crop Standards, Notification and Release of

varieties of agri-horticultural crops, Ministry of Agriculture Cooperation & Farmers Welfare, Department of Agriculture, Cooperation & Farmers Welfare, Govt of India, New Delhi-110 001 in its 84th Meeting on dated 10.07.2020 under Chairmanship of DDG (Crop Science), ICAR, New Delhi

Raj Vijay Toria 3 (RVT 3): It matures in 93–99 days. The yield potential is 13.00 q/ha. Plant medium (118-138cm) spreading, Angle of branching is obtuse, Leaves: sessile, green, seed is small to medium, Flowers: bright yellow in colour, Tolerance/ resistance to white rust, *Alternaria* leaf blight on pods, powdery mildew, downy mildew and *Sclerotinia* stem rot, less infestation of aphids. It is Suitable for rainfed and irrigated conditions of Madhya Pradesh

Raj Vijay Arhar 19 (RVA 19) [RVSA-16-1]:): It matures in 96 days. The yield potential is 19 q/ha. Resistant to *Fusarium* wilt and tolerant to Phytophthora blight. It is Suitable for cultivation in Tamilnadu, Karnataka, Andhra Pradesh and Telangana.

4.6 Salient Research Achievements:

Reflections of ongoing projects (Research Achievements)

- **Rain Water Management : Catchments–Storage Command Relationship for Enhancing Water Productivity in Micro –watershed:** Four cropping system models during 2019-20 by using harvested rainwater was evaluated in terms of crop yield, gross return, net return and B: C ratios. Among the different models, Soybean – Onion found the more remunerative as it recorded total net returns Rs. 263111/- per hectare with B: C ratio 4.76 followed by sequentially grown Maize grain – Sweet corn for green cob (Rs. 88632/- with B: C ratio 2.27), soybean – Chickpea (Rs. 58127/- with B: C ratio 2.45.The total 927.54 m^3 water was provided during rabi season toChickpea, Sweetcorn and Onion which was 36 m^3 (5.88 cm depth),394.2m^3(36.80 cm depth)and497.4 m^3(40.64 cm depth),respectively.

- **Application of bio-formulations in *kharif* groundnut production (Rcommendation based on 3 years data):** Application of 75% RDF along with NPK liquid formulation + Zn solublizing bacteria in groundnut crop variety "JGN 3" resulted in the higher pod yield, HI, B:C, gross and net returns as well as higher soil available N, P, K and organic carbon content under groundnut crop. This treatment was at par with 100% NPK with NPK liquid formulation + Zn solubilising bacteria bio formulations application.

- **Effect of Integrated weed management in *kharif* groundnut:** The application of pendimethalin 30EC + Imazethapyr 2 EC @ 1.0 kg/ha PE (ready mix) + quizafop – p- ethyl @ 50 g/ha at 15-20 DAS resulted in the significantly highest pod (2789 kg/ha), haulm yield (11111 kg/ha) water productivity (0.34 kg/m3) and weed control efficiency at 60 DAS (98%) of groundnut. It has also fetched the significantly higher net returns (96829 Rs/ha) and B C ratio (3.55) of the crop. It was followed by application of pendimethalin 30EC + Imazethapyr 2 EC @ 1.0 kg/ha PE (ready mix) with manual weeding at 25-30 DAS (2543 kg/ha, 7778 kg/ha, 0.31 kg/m3 and 88.9%, respectively).

- **Effect of Integrated water management in rainfed groundnut:** The combined application of hydro gel and mulch resulted in significantly highest pod yield (3011 kg/ha), gross (133994 Rs/ha) and net returns (93860 Rs/ha) of crop over application of hydro gel @ 2.5 kg/ha alone and the combined application of hydrogel with endophytic bacteria. The water productivity in groundnut crop with application of hydro gel with mulch, endophytic bacteria and with both mulch and endophytic bacteria was maximum (0.42 kg/m^3) which was significantly superior to farmer's practice (0.35 kg/m^3).

- **Nutrient Management: Permanent manurial trial in soybean-chickpea system in *Vertisols* :**The application of FYM 6 t /ha+ N20 P13 gave highest seed yield of 1943 kg ha^{-1} was found significantly superior with regards to seed productivity and improvement in physical and chemical properties of the soil.

- **Effect of precise leveling and seeding for wheat- based systems in scarce irrigated areas :** In scarce irrigated areas of India, pearl millet-wheat cropping system is depleting soil quality, system productivity and resources. A field experiment at AICRP-IWM, ZARS, Morena was assessed the cereal crop pearl millet (PM) and three legumes- pigeon pea (PP), greengram (GG) and clusterbean (CB) basedwheat (W) systems under two land levelling methods *viz*. traditional (TLL) and precision laser assisted (PLL), and three seeding methods- traditional tillage (TT), zero tillage (ZT) and permanent broad bed- furrow (PBBF) on various parameters. Results of PLL and PBBF crop establishment was significantly enhanced the soil quality parameters, growth characters, less plant mortality of rainy season crops and lodging of wheat compared with traditional practices. Overall improvement in soil quality, system- and water productivity (WP) and net returns were in ordered: PP-W > CB-W > GG-W > PM-W and

PBBF > ZT > TT. Results indicated that PBBF crop establishment in PLL condi tions can be made more sustainable productive, economic profitable, ameliorate soil quality and save resources in scarce irrigation system.

- **Performance of insecticides to control of gram pod borer (Helicoverpa) on yield of Gram**: Among different treatment to control of attack of gram pod borer (Helicoverpa) in gram, mean data of yield shows that the treatment Chlorantraniliprole @ 100 ml/ha had highest grain yield 1575 kg/ha followed by the use of treatment Indoxacarb @ 500 ml/ha (1523 kg/h) and Prophenophos @ 1.5 l/ha (1490 kg/ha) as compared to other treatments and control. Hence it has been concluded that maximum yield could be obtained by the use of Chlorantraniliprole @ 100 ml/ha and Indoxacarb @ 500 ml/ha.

- **Performance of different varieties of wheat under Jhabua conditions:** Mean data of yield shows that the Variety GW 463 had highest seed yield (4643 kg/ ha) followed by the GW 322 (4600 kg / ha), HI- 8713 (4580 kg/ha) and HI - 1544 (4550 kg/ha). Hence, it has been concluded that these varieties has been found most suitable for this zone

- The application of pendimethalin 1.0 kg/ha as early post emergence (10 DAS) effectively controlled *Cuscuta reflexa* and gave higher fodder yield (86 t/ha) and seed yield (273 kg/ha) of berseem. Application of imazethapyr 40 g/ha after 1st cut (30 DAS) and again applied after last cut (90 DAS) was also found effective to control *Cuscuta reflexa* in berseem.

- **Establishment of Centre of Excellence on Organic cotton:** The centre on Organic cotton Research is established at AICRP on cotton, B. M. College of Agriculture Khandwa. The following facilities has been developed at this centre

i) **Fibre quality testing lab:** The high volume instrument for testing of cotton fibre quality has been installed at this centre. The fibre quality parameters viz Fibre Length, Strength, Micronaire& Maturity, Moisture, Colour and Trash Content (Gravimetric & Optical) can be estimated with the help of these instruments. This instrument works on both High-Volume Instrument (HVI) & International Cotton Calibration (ICC) mode and the testing speed of this instrument is 100 sample/hr.

ii) **Bt. gene contamination testing lab:** A well-equipped Bt gene detection lab has been established at this centre. The screening of Non Bt cotton genotypes for presence of Bt. gene contamination is started at this centre which will help in screening of pure non Bt. cotton genotypes for organic cultivation.

- **Effect of different farming systems on growth, yield, quality and economics of Groundnut:** Different farming systems showed significant influence on various growth parameters as well as yield and yield attributes. The tallest plant

and maximum number of branches plant^{-1} were recorded with application of recommended dose of fertilizers while highest final population of plants was obtained under zero budget natural farming which was found at par with organic farming. The initial plant stand, however, remained unaffected. Similarly, significantly highest number of pods plant^{-1} (17), pod weight plant^{-1} (20 g), shelling% (72), pod yield(1503 kg ha^{-1}) and haulm yield (5563 kg ha^{-1}) were recorded where recommended doses of fertilizers were applied except for 100-seed weight and SMK% which were found highest under zero budget natural farming. The quality parameters *viz.* moisture%, sugar%, protein% and oil% did not differ significantly under different farming systems. However, the application of RDF resulted in maximum value of moisture% and protein% whereas for oil% and sugar% it was recorded highest with organic farming which was at par with control and zero budget natural farming. The post harvest status of soil showed significant variation under different farming system. The highest available nitrogen (190 kg ha^{-1}) and phosphorus (7.3 kg ha^{-1}) was recorded with RDF application and the treatment was at par with organic farming and zero budget natural framing. While the highest available potassium (220 kg ha^{-1}) and organic carbon content (0.46%) was obtained under zero budget natural farming. The application of recommended dose of fertilizers fetched significantly highest gross (82080 Rs ha^{-1}) and net returns (46797 Rs ha^{-1}) whereas zero budget natural farming resulted in significantly highest benefit cost ratio.

- **Evaluation of different soybean based cropping sequences in *Vertisols :*** Three crop sequences Soybean- Chickpea/ Safflower/ Chickpea (Kabuli), Maize- Chickpea/Safflower/ Chickpea (Kabuli) and Black gram- Chickpea/ Safflower/ Chickpea (Kabuli) were grown under rain fed condition. Result revealed that crop sequence soybean -Chickpea found more remunerative as recorded highest total net return Rs.104698/- with B: C ratio of 3.91 followed by Black gram- chickpea (Rs.81815/- with B: C ratio of 3.27), maize – chickpea (Rs.76328/- with B: C ratio of 3.12). Whereas, lowest total net return Rs.9140/- with B: C ratio of 1.25 recorded by sequence Maize- safflower. Result showed that during *Kharif* soybean (JS 20-34) recorded highest seed yield 986 kg/ha followed by maize 695 kg/ha and black gram (417 kg/ha). During ***Rabi*** chickpea (RVG 203) produced higher seed yield 2250, 2188 and 2063 kg/ha grown after soybean, black gram and maize, respectively. Where as, the higher seed yield of safflower 750 kg/ha grown after black gram followed by 688 and 625 kg/ha recorded after soybean and maize.

- **Effect of tillage and mulch on soil properties after harvest of wheat:** The pH values of soil paste were affected significantly by tillage practices (Table 44). Fallow field showed maximum soil pH (8.60) followed by zero tillage (8.52). Mulch did not affect soil pH. Significantly lowest value of ECe (1.37 dS/m) was recorded under conventional tillage followed by reduced tillage (1.45 dS/m) and zero tillage (1.70 dS/m). However, ECe did not influenced significantly by mulch. . ESP as influenced significantly by various tillage and mulch practices. The lowest mean value of ESP (25.60) was recorded under conventional tillage followed by reduced tillage (28.23). The lowest

ESP (28.20) was noticed with mulch as compared to no mulch (30.12). Similarly, significantly higher organic carbon content was recorded with conventional tillage (0.43%). Application of mulch recorded significantly higher organic carbon content (0.42%) as compared to without mulch treatment. The data presented in Table 45 indicated that tillage practices and mulch had no significant effect on available N, P and K.

- **Precise crop establishment and water management practices beneficial for pigeon pea-wheat system:** In water scarce Northern region of Madhya Pradesh state, non-availability of the canal water and poor aquifer formations limit water availability for irrigation and enhanced crop production. A multiyear field study was initiated at AICRP-IWM, ZARS, Morena, to explore possibilities of enhancing crop productivity through improvement in soil quality and efficient use of ground water resources. The results indicated that permanent broad bed furrow (PBBF) seeding and irrigation with drip irrigation significantly enhanced the productivity of crops, wheat equivalent yield and system protein productivity of pigeon pea – wheat besides improving the soil water storage, water-use efficiency and soil quality parameters, as compared with all other methodsof tillage and seeding and irrigation followed under study. Overall improvement in productivity of system was in ordered: PBBF>zero till seeding >conventional tillage seeding and drip> Furrow >boarder strip irrigation in normal and abnormal climatic conditions. The study has indicated that drip irrigation system can be more effective in enhancing wheat equivalent yield, system protein productivity but if economic resources do not allow for drip irrigation system then PBBF with furrow irrigation method can also be a very good option with some management of the crop residues in dry land conditions.

- Enhancing nitrogen use efficiency in Bt. Cotton has been evaluated. Application of 75% RDN + placement (Spot application in 4 splits:-basal, squaring, flowering and boll development) +foliar application of 1 % Urea (3 times: - squaring, flowering and boll development)+ raising of sun hemp between rows incorporated before flowering was obtained highest seed cotton yield. Technology for organic cotton production has been worked out. It was concluded that seed treatment and soil application of reco- bio fertilizers with 1% foliar application of PPFM alongwith Neem cake 250 kg/ha and intercropping with soybean have maximum yield.The five Bt. genotypes and spacing had been evaluated. The genotypes (Denim 703 Bt) Was found superior than other genotypes. Whereas the spacing (60cm X 15 cm) was found superior than the other spacings. The maximum seed cotton yield was found with the interaction S_1 G_5. The maximum seed cotton yield was observed under the genotype (Rassi 659 BG II) with the application of ethrel @ 45 PPM at 40 DAS and mepiquat chloride @ 100 PPM at 90 DAS (G_1B_3).Mepiquat Chloride Sprayed (20ga.i/ha) on the plants at 60 and 75 DAS have

been evaluated. Plant height was clearly decreased by MC. Thus, Mepiquat chloride decreased plant height, LAI but increased the no. of bolls per square metre area and boll weight as well as seed cotton yield.

- **Effect of Land Configuration and Foliar Application of Nutrients for Yield Maximization in Black gram [*Vigna mungo (L.)* Hepper]**

Experimental Details: Twelve treatment combinations consisted with three land configurations (Raised bed, Flat bed sowing followed by ridge making, Flat bed) and four nutrient management (Control (Water spray), Neem coated urea @ 2% spray at flower initiation, TNAU pulse wonder @ 5 kg ha^{-1}spray at flower initiation, NPK (18:18:18) @ 2% spray at flower initiation), tested in strip plot design, keeping plot size of 5.0 m x 2.7 m. The experiment was sown on 23.07.2019 and harvested on 15.10.2019. The variety AKU- 96-3 was used.

Results: Among the land configuration, raised bed method of sowing found significantly superior than flat bed sowing. It gave seed yield of 841 kg/ha. As regards nutrient management, application of NPK 18:18: 18 @ 2% spray gave seed yield of 757 kg /ha which is found significantly superior than the control (615 kg/ha).

- **Effect of different treatments on seed yield of Urdbean.**

S. No.	Treatments	Seed yield (kg/ha)	
		2018-19	2019-20
A	**Land configuration: 03**		841
	2. Flat bed followed by ridge making	690	767
	3. Flat bed	367	466
	SEm ±	32.57	
	CD at 5%	90.41	73
B	**Nutrient management: 04**	516	615
	2. Neem coated urea @ 2% spray	585	682
	3. TNAU pulse wonder @ 5 kg ha^{-1}spray		711
	4. NPK (18:18:18) @ 2% spray		757
	SEm ±		
	CD at 5%		33.48
	CV%	5.22	4.23

- **Effect of fertilizer doses, organic manure and biofertilizer for yield maximization of urdbean and their effect on succeeding rabi crop**

Experimental Details: Eighteen treatment combinations consisted with three levels of recommended fertilizer, two levels of farm yard manure and three *Rhizobium* strains, tested in RBD with three replications, keeping plot size of 5.0 m x 3.0 m. The experiment was sown on 09.07.2019 and harvested on 08.10.2019.The variety AKU 96-3 was used.

Results: Application of 75 % of recommended dose of fertilizer gave significantly higher seed yield 875 kg/ha found on par with 100 % % recommended dose of fertilizer (786 kg/ha) than the 125 % RDF (681 kg/ha).Application of FYM @ 5 ton/ha gave significantly higher seed yield 859 kg/ha than no FYM application 702 kg/ha. Seed treatment with *Rhizobium* + LMn 16 is better yielded 870 kg/ha than the others.

Table: Effect of different treatments on productivity of Urdbean

S. No.	Treatments	Seed yield (kg/ha)	Seed yield (kg/ha)
		2018-19	2019-20
406	Fertilizer level -03		
	F_1 75% RDF	380	875
	F_2 100% RDF		786
	F_3 125% RDF	423	681
	SEm±	2.6	31
	CD at 5%	7.6	105
	CV %	3	17
2	Oragnic manure -02		
	m_0 control	594	702
	m_1 Farm yard Manure (5 ton/ha)	616	859
	SEm±	2.6	25
	CD at 5%	7.6	86
	CV%	3	16
3	Biofertilizer -03		
	B_1 rhizobium	397	787
	B_2 LMn 16	402	784
	B_3 rhizobium+ LMn 16	411	870
	SEm±	2.6	31
	CD at 5%	7.6	105
	CV%	3	17

- **System intensification for soybean productivity augmentation under ridge furrow planting**

  Experimental details: Design: split plot; Replications: 3; Gross plot: 6m x 3.6m; Net plot: 5.5 x 2.7m; Treatments: 08 Main plot: Variety 2(RVS 24 and JS 20-34), sub plot: Plant geometry04(45X5,45X10,45X20,45X30cm);Fertilizer: 20:60:20:20 N: P_2O_5: K_2O: S kg/ha; Sowing: 01-07-2019; Harvesting: JS 20-34(5-10-2019) & RVS 24 (11/10/2019).

  Results: The two factor interaction between varieties and plant geometry was significant. Variety RVS 24 recorded higher grain yield planted at 45X15 cm plant geometry and this combination was significantly at par with RVS24X45X10 cm combination. Whereas, variety JS 20-34 was gave significantly higher yield planted at 45X5 cm then other plant geometries.

- **Survey and surveillance of major insect-pests of grape and their natural enemies status of new emerging insect pests of grapes and their natural enemies :**

Injury level rating for different pests:

Pest	**Injury level**			***Plant part***
	Low	**Moderate**	**High**	
Flea beetle	Up to 15%	16 to 30%	> 30%	Leaf injury

Thrips	Up to 5%	6 to 15%	> 15%	Berry & Leaf injury/scrapping
Mealy bug	Up to 10%	11 to 20%	> 20%	Bud sprout or bunch damage
Helicoverpa	Up to 10%	11 to 20%	> 20%	Berry damage/bunch damage
Spodoptera	Up to 10%	11 to 20%	> 20%	Leaf damage
Mites	Up to 10%	11 to 20%	> 20%	Webbing & browning of leaves

Results: Survey of vineyards was carried out during 2019-2020 in Ratlam district of Madhya Pradesh. The results are presented in Table 1 & 2. Total 10 vineyards were surveyed for observing the prevalence of different insect pests *viz.*, Mealybug (*Maconellicoccus hirsutus*), thrips (*Rhipiphorothrips cruentatus*), flea beetle (*Scelodonta trigicollis*), mites (*Tetranichus urticae*), *Spodoptera* Sp., *Helicoverpa*Sp., and stem borer (*Coelosterna scabrator*). It was observed that out of 10 vineyards surveyed, 4 vineyards (40.00%) were found infested with mealy bug, and but all vineyards having low and moderate level of infestation. Infestation of Thrips was recorded in all 10 vineyards and but the infestation level was low in 5 vineyards (80.00%) while moderate in 2 vineyards (20.00%). The infestation of flea beetle was low to moderate and recorded in 1 vineyards (10.00 %) only. The infestation of stem borer was recorded in 1 vineyard (10.00 %). *Spodoptera* was observed only in one vineyard (10.00%) during the period. There was no recorded infestation of *Helicoverpa* and mite during the period under report. Survey indicates that the thrips, stem borer were the major pests in Ratlam and Mandsaur district which leads to weathering the vineyards.

- **Evaluation of integrated disease management modules against major diseases (bacterial blight/root rot and downy mildew) of opium poppy :**

Result: Evaluation of integrated disease management modules against major diseases (bacterial blight/root rot and downy mildew) of opium poppy were conducted during 2019-20 at research field RVSKVV, College of Horticulture, Mandsaur. Among the nine treatments in the treatment T-3 (Furrow soil application of FYM (500g/m2) enriched with *T. harzianum + P. fluorescens* @ 2.0%, 4-5 days prior to sowing +seed treatment with Streptocycline sulphate @ 0.030% (300ppm) and Metalaxyl @ 2.5g/kg and on appearance of disease symptoms spray of *T. harzianum* and *P. flourescens* @ 0.5 % + Second and third spray with Streptocycline sulphate @ 0.030% (300ppm) and Metalaxyl @ 0.25% at 15 days interval) recorded minimum downy mildew disease incidence (17.33 %) and root stem rot incidence (11.27 %) maximum latex yield (49.81 kg/ha) and seed yield (684.01 kg/ha) and husk yield (691.41 kg/ha) followed by Treatment T-4 (Furrow application of FYM (500g/m2) enriched with *T. harzianum + P. fluorescens* @ 2.0% , 4-5 days prior to sowing. Seed treatment with Streptocycline sulphate @ 0.030% (300ppm) and Metalaxyl

@ 2.5g/kg + on appearance of disease symptoms (any disease) three spray of Bordeaux mixture @ 5000 ppm at 15 days interval)(Downy mildew PDI 19.33 % and root stem rot PDI 12.57 %) and seed yield and husk yield (645 kg/ha and 643.32 kg/ha). Whereas control T-9 recorded highest downy mildew incidence (46.67 %) and stem and root rot incidence (24.27 %), least latex yield (35.13 kg/ha),seed yield (421.02 kg/ha) and husk yield (411.16 kg/ha) respectively.

- Madhya Pradesh being one of the major **cotton** growing states of the country has witnessed spectacular developments in the cotton scenario this season. The area under cotton in the state in 2018-19 was 6.97 lakh hectares and the total production of cotton was 24.00 lakh bales with an average productivity of 585 kg of lint per hectare.

Crop production - Enhancing nitrogen use efficiency in Bt. Cotton have been evaluated. Application of 75% RDN + placement (Spot application in 4 splits:-basal, squaring, flowering and boll development)+foliar application of 1 % Urea (3 times :- squaring , flowering and boll development)+ raising of sun hemp between rows incorporated before flowering was obtained highest seed cotton yield. Technology for organic cotton production has been worked out. It was concluded that seed treatment and soil application of reco- bio fertilizers with 1% foliar application of PPFM alongwith Neem cake 250 kg/ha and intercropping with soybean have maximum yield. The five Bt. genotypes and spacing had been evaluated. The genotypes (Denim 703 Bt) Was found superior than other genotypes. Whereas the spacing (60cm X 15 cm) was found superior than the other spacings. The maximum seed cotton yield was found with the interaction S_1 G_5. The maximum seed cotton yield was observed under the genotype (Rassi 659 BG II) with the application of ethrel @ 45 PPM at 40 DAS and mepiquat chloride @ 100 PPM at 90 DAS (G_1B_3).

- **Rain Water Management Catchments**–Storage Command Relationship for Enhancing Water Productivity in Micro –watershed: Four cropping system models during 2019-20 by using harvested rainwater were evaluated in terms of crop yield, gross return, net return and B: C ratios. Among the different models, Soybean – Onion found the more remunerative as it recorded total net returns Rs. 263111/- per hectare with B: C ratio 4.76 followed by sequentially grown Maize grain – Sweet corn for green cob (Rs. 88632/- with B: C ratio 2.27), soybean – Chickpea (Rs. 58127/- with B: C ratio 2.45. The lowest was recorded with Maize grain – Chickpea (Rs. 34396/- with B: C ratio 2.16). This year productivity of Kharif crops is severely affected due to excess and continue rain fall during crop growth period (1549.8 mm in 66 rainy days).

- **Evaluation of different soybean based cropping sequences in Vertisols** : Three crop sequences Soybean- Chickpea/ Safflower/ Chickpea (Kabuli), Maize Chickpea/Safflower/ Chickpea (Kabuli) and Black gram- Chickpea/ Safflower/ Chickpea (Kabuli) were grown under rain fed condition. Result revealed that crop sequence soybean - Chickpea found more remunerative as recorded highest total net return Rs.104698/- with B: C ratio of 3.91 followed by Black gram- chickpea (Rs.81815/- with B: C ratio of

3.27), maize – chickpea (Rs.76328/- with B: C ratio of 3.12). Whereas, lowest total net return Rs.9140/- with B: C ratio of 1.25 recorded by sequence Maize- safflower. Result showed that during Kharif soybean (JS 20-34) recorded highest seed yield 986 kg/ha followed by maize 695 kg/ha and black gram (417 kg/ha). During Rabi chickpea (RVG 203) produced higher seed yield 2250, 2188 and 2063 kg/ha grown after soybean, black gram and maize, respectively. Where as, the higher seed yield of safflower 750 kg/ha grown after black gram followed by 688 and 625 kg/ha recorded after soybean and maize

- **Success story from farmer's field Effectiveness and utility of percolation tanks in Malwa and Nimar region** : The team of All India Coordinated Research Project for Dryland Agriculture, College of Agriculture, Indore, have been visiting regularly different villages of various districts of Malwa and Nimar region to assess farmers' priorities and problems related to agriculture. Initially during 1990, it was desired by the farmers that project should attempt to enhance the irrigation water availability and should provide improved varieties of different crops for increasing agricultural production and income. Thus, through various ICAR and state supported and financed watershed programmes, number of water-harvesting tanks were constructed mostly on government lands for providing irrigation water to farmers. The improved varieties of different crops like soybean, chickpea, maize etc. enhanced the farm productivity and income with the help of supplemental water through water-harvesting tanks. During 2000 onwards, with the success stories of these water-harvesting tanks, number of farmers were convinced, inspired and provided their own lands and allowed project for the construction of water harvesting tanks on it. This process helped these farmers to grow successful Rabi crops like chickpea, wheat, potato, onion, garlic after kharif which was otherwise not possible. After all these interventions from project side, it was experienced that in Malwa region several geographical situations are existed where successful water-harvesting tanks could not be constructed. These locations are having the cultivated fields, which are underlined by fragmented basalt having very high percolation rate. Thus, the runoff could not be collected and stored for longer time. Therefore, the farmers having these type of situations were not agreeing to construct percolation tank instead of water harvesting tank because they wished to have surface stored water for irrigation. Though they were agreeing to the fact that percolation tank construction would enhance the ground water recharge, which can ultimately can provide increased irrigation water through their tube wells and open wells. Thus, they did not want the construction of percolation tank in their field as it make a part of their cultivated field. During 1991, at the lowest boundary of College of Agriculture, Indore, a percolation tank was constructed with the provision of gabion structure at outlet. The tank is collecting huge amount of runoff as per its capacity and then draining the excess water safely into the natural drain. The stored water is being percolated continuously and its immediate impact can be seen in the adjoining open well, which has started providing irrigation water almost throughout the year since then. In 2000, the project identified a land portion, which was adjoining the ridgeline of the field of Shri S.C.Sharma of village Baroli district Indore. The runoff water from the ridgeline 54 ANNUAL PROGRESS REPORT: 2019-20, DRS RVSKVV used to enter with the high velocity

in field of Shri Sharma and was eroding the parts of cultivated field and thereby damaging the crops and retarding the fertility. The project constructed a 190m long and 2m wide earthen bund in this wasteland by using a bulldozer. Because of this activity, the degraded and wasted land adjoining the ridgeline was converted into tank area, which immediately started collecting the runoff water in the upstream site of the earthen bund. This helped to reduce the losses in the cultivated field due to soil erosion completely and to collect huge amount of runoff water in the wasted portion. Since the soil was underlained by basaltic murram, the stored water was percolated within few days. During 2000 monsoon season itself, this tank area were filled several time with runoff and were percolated. These resulted in the enhanced water availability in the nearby stepwell and other open wells located in the fields of Shri Sharma. These open wells were recharged fully and filled up to the brim, which was otherwise an impossible situation in this village. Due to percolation tank, the 10 ha area could be irrigated with high productivity and income from chickpea and wheat production during rabi season. Though Shri Sharma was involved in agriculture activities for 25 years, he was able to irrigate only 0.75 ha land using open well water before the percolation tank construction. Since 2000 onward, he has been irrigating rabi crops due to enhanced water availability due to construction of percolation tank. Now he is a successful and resourceful farmer and his experience with percolation tank is inspiring many other farmers. In 2005 also, a percolation tank was constructed by the project using bulldozer in a field adjoining to ridgeline in the village Jaitpura block Sanwer district Indore. In the first year itself, a huge amount of runoff was collected in the tank area that enhanced the recharge of nearby open well and tube well. The storage of runoff water in the upper portion also helped in reducing the soil erosion losses in the lower fields. In 2008, a progressive farmer Shri Keval Singh Patel from village Hatod, tehsil Depalpur District Indore contacted the project team and requested to construct water-harvesting tank through technical guidance. The project team observed that after the construction of tank, it would not be possible to retain the stored water for longer time as this portion is underlained by basaltic murram that is having very high percolation rate. Initially, Shri Patel was very distressed initially because he wanted to have water-harvesting tank. However, he agreed to get constructed percolation tank in this portion. With the help of technical guidance from project team, Shri Patel invested Rs 3 lakhs for the construction of a big percolation tank. Actually, this eroded land portion of Shri Patel was adjoining to a ridgeline and the uncontrolled runoff water from this portion was badly damaging his land and crops. In this natural drain line, he initially tried to adopt different measures like loose boulder structures to control the runoff. However, because 55 ANNUAL PROGRESS REPORT: 2019-20, DRS RVSKVV of high velocity of runoff, he could not be able to do so. The project team constructed a percolation tank of size 80x30x2 m in the natural drain line which is now not only collecting the runoff but also completely reduced the chances of heavy damage in the lower portion of the fields. This stored water collected during rainy season since 2008 onward, is getting percolated and recharging nearby open well and tube wells. Because of this, even rabi crops is being grown successfully in most of the cultivated fields which was otherwise impossible before the construction of percolation tank. Shri Patel got so overwhelmed with the success of percolation tank in the first year itself and he

thanked the team several times. He also admitted that only because of team members, he got convinced for the construction of percolation tank, which is not only helping him through subsurface storage of runoff water but also saving the fields of other farmers too from the soil erosion losses and recharging their tube wells. Further, he is proud of solving the problems related to uncontrolled runoff technically and for helping the other farmers socially. In 2010, a percolation tank (2500m3) was constructed by a farmer shri M.K.Patidar in village Panod block Sanwer district Indore under the technical guidance of AICRPDA team. The farmer also provided two shafts for ensuring deeper percolation of the stored runoff water through it. These shafts were provided with metallic filter material on the openings to avoid the entry of foreign materials in ground water. This activity recharged the nearby two tube wells, which provided sufficient irrigation water for the irrigation to rabi crops in almost 10 ha area. This phenomenon is still happening and providing sufficient irrigation water through tube wells even during scanty rainfall period. Similarly the team visited village Lonsara tehsil Rajpura district Barwani in the year 2014 for assessing the problems and providing technical guidance to village farmers. The team observed that in between two ridgelines, an earthen dam was constructed in 1990 that is collecting and storing huge amount of water and providing irrigation water through canal in various villages for irrigation, which has been found very helpful in increasing the crop productivity. The provision dam even recharging throughout the year the tube wells and open wells of the villages with no canals. Actually, before the construction of dam, a seasonal river used to flow naturally through these villages. The amount of flowing water in this river drastically reduced after the construction of earthen dam at the starting point. However instead of flowing water the quantity of subsurface water in this river belt increased in its 10km long river bed. In this portion, the farmers constructed more than 100 open wells at regular interval and surprisingly in each open well, ground water is available within 2-3 m from ground level. Due to availability of appreciable amount of irrigation water, these villages are growing multiple 56 ANNUAL PROGRESS REPORT: 2019-20, DRS RVSKVV crops with wide range of crop diversity. Even during summer season due to enhanced ground water, farmers are growing maize, tomato, cucumber, watermelon and various vegetables successfully, which was otherwise not possible in these village despite locating on the bank of seasonal river. Even the submersible pumps of few tube wells have been replaced by centrifugal pumps as ground water are available within 3-4 m from ground level. This way, it can be experienced that the construction of earthen dam is not only helpful in providing irrigation water through canals but also providing subsurface water through open wells and tube wells in sufficient quantity for various crops grown during kharif, rabi and summer season even in canal free villages. Various village panchayats of different villages constructed stop dams in gullied portion, which resulted in stabilization of gullies and make it possible to drain of runoff water safely for enhancing water availability in the village. The AICRPDA project organized a training programme to different watershed committees in 2016. In this training programme, the technological guidance was provided so that the area between two stop dams in the stabilized gullied could be excavated to construct sunken pond in the series. Further, the excavated soil should be spread into unleveled field or in wasted land so that

crop production can be enhanced. Shri Lokendra Singh Tomar village Harsola, block Mhow District Indore adopted this suggestion and constructed sunken pond in the gullied portion and used the excavated soil to make a new field to make it suitable for crop cultivation. The impact of this development realized immediately in the area, which was very dry on 20.06.2018 for the want of monsoonal rain. The excavated area became full of water on 22.06.2018 in the first rainy shower itself. This portion immediately served as a percolation tank and recharged the nearly open well to convert it into an irrigation source that was otherwise not possible at all. During the entire monsoon season of 2018, this process continued throughout the season and the sunken pond retained huge amount of runoff water and converted it into subsurface water through recharging the open well. Similarly, the huge amount of runoff water retained in portion between the two stop dams, which ultimately reduced the losses in the cultivated fields, located on the downstream sides. In March 2018 in the research field of AICRPDA, a percolation tank of 907 m3 storage capacity was constructed. This percolation tank was so constructed that it not only receives excess water from the HDPE lined water-harvesting tank but also collects the runoff from other agricultural field. The soil of the area is underlined by basaltic murram that is having 18-20 cm percolation rate per day. Therefore, the stored water in the percolation tank continuous gets percolated which ultimately enhances the chances of ground water recharge. Before the construction of this percolation tank, the excess water from lined water harvesting tank and 57 ANNUAL PROGRESS REPORT: 2019-20, DRS RVSKVV runoff water from other areas continuously eroding the lower portions of farm area due to higher velocity of runoff water. Immediately after the construction of percolation tank, the excess runoff water is stored in the percolation tank which ultimately controlling the soil erosion and its adverse effect in appreciable farm area. This way in AICRPDA research field not only runoff water is being collected in lined water harvesting tank (1781m3) but also the runoff water is stored in percolation tank for its ultimate utilization for ground water recharge. Thus, rainwater is properly being managed for its further utilization during kharif and Rabi season and thereby reducing the losses to offsite fields due to soil erosion. The success stories generated from all above-mentioned percolation tanks, many farmers are getting motivated and contacting the project team for providing technical guidance for the construction of percolation tank in their fields, which was otherwise a rare gesture. Based on the experiences gathered from all the percolation tanks, it can be pointed out that these tanks are very useful in storing the runoff and recharging the ground water and even controlling the erosion losses to offsite field located on downstream site. This way percolation tanks can be considered at par with water-harvesting tanks in terms of enhancing availability of irrigation water for the rain fed areas.

Weed management in non-chemical cropping system

Weed management in non-chemical maize-potato–greengram (as green manuring) cropping system

Weed management in maize (sweet corn) under non-chemical cropping system

Based on two years experimentation (2018 and 2019) it was concluded that the application of soil solarization with one hand weeding resulted better response to suppress the narrow and broad leaved weeds Among all the non-chemical weed management practices the intercrop (maize+greengram) gave maximum yield of cobs (6.39 t/ha) *fb* the application of soil solarization with one hand weeding (6.09 t/ha) and soil solarization with plastic mulch (5.46 t/ha). However the yield of recommended dose of fertilizers + recommended herbicide (atrazine 750 g/ha PoE) was recorded 5.74 t/ha. Therefore, among non-chemical weed management practices intercrop (maize + greengram) application, can contribute to increase productivity and profitability of sweet corn in maize based cropping system.

Rabi 2019-20 (pooled 2018-19 and 2019-20)

I. **Weed management in potato under maize based non-chemical cropping system**

On the basis of two years data it was concluded that the population of weeds was suppress by the application of soil solarization with plastic mulch *fb* soil solarization with one hand weeding and resulted higher WCE 90%. Therefoe soil solarization can be contribute to decreased narrow and broad leaved weeds, higher productivity and profitability of potato crop under maize based non-chemical cropping system.

On Farm Research (OFR):

i. **Wheat:** From the above findings it can be concluded that application of sulfosulfuron + metsulfuron (30+2) g/ha PoE gave maximum yield (4.31 t/ha) *fb* clodinafop + metsulfuron (60+4) g/ha PoE (4.21 t/ha) in the farmers field, which was 30.50%, and 27.60% higher over farmer's practice (no herbicide applied) respectively. The B:C ratio was found 2.52 and 2.47 in these weed management practices as compared to 2.33 in farmer's field respectively.

ii. **Pearlmillet:** It was observed that all the chemical weed management practices gave higher grain yield over farmers practice. The maximum yield of pearlmillet 2056 kg/ha was obtained with the application of atrazine 0.5 kg/ha + 2,4-D 0.5 kg/ha (PoE) *fb* pendimethalin 1.0 kg/ha PE, which was 32.0%, and 29.0% higher than farmers practices respectively. The B:C ratio (2.85) was also recorded higher with the application of atrazine 0.5 kg/ha + 2,4-D 0.5 kg/ha (PoE).

iii. **Blackgram:** In the experiment of blackgram, the maximum yield 809 kg/ha was recorded with the application of imazethapyr + imazamox (RM) 80 g/ha PoE *fb* pendimethalin + imazethapyr (RM) 750 g/ha PE, which was 41.0%, and 37.0% higher than farmers practice. The B: C ratio was also highest (3.01) recorded in imazethapyr + imazamox (RM) 80 g/ha PoE.

- **Front Line Demonstration (FLD)**

iv. **Wheat:** From the above findings it can be concluded that the combination of sulfosulfuron + metsulfuron (30+2) g/ha PoE gave maximum yield (4.29 t/ha) *fb* clodinafop + metsulfuron (60+4) g/ha PoE (4.25 t/ha) in the farmers field, which was 24%, and 23% higher than farmers practice (no herbicide applied) respectively. The B: C ratio was also found 2.51 and 2.49 in these weed management practices as compared to 2.45 in farmer's field respectively.

v. **Pearlmillet:** In pearlmillet it was observed that both the chemical weed management practices gave higher grain yield over farmers practice. Maximum yield of 2.01 t/ha was obtained with the application of atrazine 500g/ha PE + 2, 4-D 500g/ha (PoE*) fb* atrazine 500g/ha alone, which was 42% and 40% higher than farmers practice respectively. Similarly higher B:C ratio of 1.45 was recorded in atrazine 500g/ha PE + 2,4-D 500g/ha (PoE).

vi. **Blackgram:** In blackgram it was observed that maximum yield of 775 kg/ha was obtained with the application of imazethapyr + imazamox (RM) 80 g/ha PoE *fb* quizalofop-p-ethyl 75 g/ha PoE, which was 42%, and 35% higher than farmers practice. The highest B:C ratio of 2.54 was also recorded in imazethapyr + imazamox (RM) 80 g/ha PoE.

Breeder seed production *Rabi 2019-20*: A quantity of 5820.40 quintals of breeder seed produced of various crops namely Gram , Wheat , Lentil, Mustard, Toria, and Pea produced during Rabi 2019-20.

S. No.	**Crops**	**Production (qt)**
1.	Gram	3371.00
2.	Wheat	2233.00
3.	Lentil	63.00
4.	Mustard	53.40
5.	Toria	8.00
6.	Pea	92.00
Total		**5820.40**

Breeder seed production *Kharif* -2020: A quantity of 2141.27 quintals of breeder seed produced of various crops namely Soybean, Green gram, Black gram and Paddy produced during Kharif 2020.

Kharif 2020	
Soybean	1724.30
Green gram	28.14
Black gram	42.17
Paddy	346.66
Total	2141.27

Awards and recognitions

S.N.	Name of Scientists	Date	Name of award	Name of Society/ Agency

01	Dr. R.S. Chundawat, Pr. Scientist	17.08.2019	Dr. APJ Abul Kalam, Life Time achievement award	International society of social economic reform, Bangalore (Karnataka)
02	Dr. R.P. Patel, Dr. S.B. Singh, Dr. R. N. Kanpure & Sh. B.K. Patidar	20-22 Oct. 2019	Poster Presentation-II	Astha Foundation Meerut (M.P.) INDIA
03	Dr. Ekta Joshi (Membership No. 002/EBM/2020)	May 2020	Reviewer of the Year	SBER, Research Biotica
04	Dr. Ekta Joshi	5 June, 2020	Certificate of Merit	National Level Quiz on the occassion of "World Environment Day-2020" organised by the Campus Development-Nature Club & Green Audit Cell.

- **Distinguished Visitors:**

S.N.	Prominent Visitors	Date	Institute/organization	Place of visit description
1.	Hon'ble Shri Narendra Singh Tomar,	20th Feb, 2020	Union Minister of Agriculture & Farmers welfare	ZARS Morena 
2.	Dr. S.K. Rao	16.02.2020 & 6.3.2020	Hon'able Vice Chancellor, RVSKVV, Gwalior	ZARS, Farm
3.	Dr. V.S. Tomar	6.3.2020	Hon'able Ex. Vice Chancellor, RVSKVV, Gwalior & JNKVV, Jabalpur	ZARS, Farm
4.	Sh. Guman Singh Damor	17.09.2019	Member of parliament, Jhabua	ZARS, Jhabua
5.	Dr. T.R. Sharma DDG (Crop Science)	10.02.2020	ICAR, New Delhi	Regional Centre IIPR, Funda (Bhopal) 
6.	Dr. N.P. Singh Director	04.02.2020	Indian Institute of Pulses Research,	Experimental field of AICRP-Chickpea, R.A.K.

			Kanpur	College of Agriculture, Sehore 
7.	Dr. A.K. Singh (DI) and Dr. M.P. Jain (DRS)	February, 2020	RVSKVV, Gwalior	 Field of Ag. Research farm (AICRP-WM)
8.	Dr. M.S. Yadav Principal Scientist, Plant Pathology, NCIPM, New Delhi	25-26 February, 2019	NCIPM, ICAR, New Delhi	Villages of Bhind, Villages of Morena and ZARS Farm, Morena
9	Hon'ble Vice-Chancellor Prof. S.K. Rao and Former Vice-Chancellor and Board Member Prof. V.S. Tomar	7 March, 2020	Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior (M.P.)	ZARS, Research field, Morena (M.P.)
10	Dr. Sanjeev Gupta PC (MULLaRP) & Dr.Shiv Kumar Lentil Breeder ICARDA	13.02.2020	Indian Institute of Pulses Research, Kanpur & ICARDA	MULLaRP Experiments at COA Sehore 
11	Dr.Ved Prakash Lentil Breeder and Dr.Shailendra Singh (Agronomist)	29.02.2020	ICAR Monitoring team for MuLLaRP	MuLLaRp Monitoring of MuLLaRP experiments 
12	Dr. R.G. Somkuwar, Director	18/02/2020	NRC, Grapes, Pune	AICRP on fruits Research trails College of Horticulture, Mandsaur
13	Dr. A.K. Upadhyay, Principal	18/02/2020	NRC, Grapes, Pune	AICRP on fruits Research trails College of Horticulture, Mandsaur

	scientist			
14	Dr. Roshni Samrath scientist	18/02/2020	NRC, Grapes, Pune	AICRP on fruits Research trails College of Horticulture, Mandsaur

S.N.	Prominent Visitors	Date	Institute/organization	Place of visit description
15	Hon'ble Central Agriculture Minister, Shri Narendra Singh Tomar	17/09/2019	Government of India	ZARS, Research field, Morena (M.P.)
16	Director of Rapeseed & Mustard, Bharatpur	07/12/2019	Directorate of Rapeseed Mustard, Bharatpur (Raj.)	ZARS, Research field, Morena (M.P.)
17	Hon'ble Vice-Chancellor Prof. S.K. Rao	17/09/2019	Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior (M.P.)	ZARS, Research field, Morena (M.P.)

4.7 Organized Meetings/ Workshops /Seminar etc

- Krishak Sangoshthi under FFP Project at Morena: Shri Narendra Singh Tomar, Union Minister of Agriculture & Farmers welfare inaugurated the Krishak Sangoshthi through video conferencing on 7th March, 2020 organized at the Santha Village, Morena district under the FFP project. Shri Tomar urged the farmers for making the Farmers producers organizations (FPOs) that can revolutionize the agricultural field of the country. The Minister expressed his concerns on the major irrigation water related problems, such as, majority of farmers in region use flood irrigation resulting in low yield, quality of produce, decreasing water table and soil health, etc. In his address, Prof. S.K. Rao, Vice-Chancellor, Rajmata VijayarajeScindia Krishi Vishwa Vidyalaya, Gwalior, emphasized to promote the IFS modules, protected cultivation, vegetable production, processing and value-addition and agro-based enterprises for higher profits. Prof. Rao urged to develop the aggregation modules for the farmers on commodity and community-based group farming linked with the FPOs. Prof. V.S. Tomar, Former Vice-Chancellor, RVSKVV also present on this vocation. More than 2000 farmers, rural youth, ARS, trainees, Senior Officers, various dignitaries attended the programme.

- Two days In-Service Training was conducted at ZARS, Morena on 23-24 Ferbruary, 2020. Twenty agriculture personals were attend the training programme on Production Technology of rapeseed-mustard, Plant protection techninques and they were updated with the latest high yielding varieties and field visit of the research farm was also done

- Two Skill developments training of 200 hours each on subject Nursery worker organized on 26/02/2020 to 22/03/2020 at College of Horticulture, Mandsaur. In this training program total 44 rural youth and students were participated.
- One field day organized at village rain dist. Ratlam on 17.02.2020 on innovative grape farmer Field of Mr Rajesh Ji Patel in Chairmanship of Dr.M.P.Jain DRS, RVSKVV, Gwalior and Dr. S.N. Mishra, Dean College of Horticulture, Mandsaur. The programme starts with enlighten lamp by Chief guest Dr. R.G. Somekuwar, Director NRC, Grapes Pune. In starting of programme Dr. Somkuwar were given suggestions for successful cultivation for grape growing after this Dr. A.K. Upadhyay Principal scientist NRCG, Pune give details about soil health and fertilizer schedule. Dr. S. N. Mishra given lecture for how increasing income with horticulture corps. Total 70 farmers, department officials and KVK persons were participated in this programme

- Two day training (February 24-25, 2020) was organized at College of Horticulture, Mandsaur on Instrument and laboratory equipment handling operation techniques.

- The Annual Farm Meeting was organized through Video Conferencing (Google meet) on May 11-12, 2020 under the chairmanship of Prof. S K Rao, Hon'ble Vice Chancellor, RVSKVV, Gwalior. The authorities of the University, Dean of the Colleges, ADRs, Senior Scientist & Head of the KVKs, officer In-charges farms, breeders working at different places of the University and HOD's was linked to attend the meeting.
- Review meeting of the Institutional Research Project was organized on May 21, **2020 t**hrough Video Conferencing (VC) under the Chairmanship of Hon, ble Vice Chancellor to review the physical & financial progress of the Institutional Research Project. The authorities of the University, Dean of the Colleges, ADRs, and Project In-charges working at different places of the University was linked to attend the meeting.
- The Research Review Meeting of All India Coordinated Research Projects (ICAR) was organized through Video Conferencing (Google meet) on May 22-23, 2020 under the chairmanship of Prof. S K Rao, Hon'ble Vice Chancellor, RVSKVV, Gwalior. The authorities of the University, Dean of the Colleges, ADRs, Project In-charges working at different places of the University and HOD's were linked to attend the meeting.
- The Research Review Meeting of Plan, Non plan, TSP and GKMS Projects was organized through Video Conferencing (Google meet) May 26, 2020 under the chairmanship of Prof. S K Rao, Hon'ble Vice Chancellor, RVSKVV, Gwalior. The authorities of the University, Dean of the Colleges, ADRs, Project In-charges working at different places of the University and HOD's was linked to attend the meeting.
- The review meeting of BARC/BISA/RKVY Projects was organized on **June 02, 2020** under the Chairmanship of Hon, ble Vice Chancellor of the University through Video Conferencing (Google meet). The authorities of the University, Dean of the Colleges, ADRs, Project In-charges working at different places of the University was linked to attend the meeting.

- The review meeting of Externally funded /Adhoc research Projects Projects was organized on **June 03, 2020** under the Chairmanship of Hon, ble Vice Chancellor of the University through Video Conferencing (Google meet). The authorities of the University, Dean of the Colleges, ADRs, Project In-charges working at different places of the University was linked to attend the meeting.
- **World Soil Day**: organized to bring awareness about Soil Health among public and farming community focusing theme **"Keep Soil Alive-protect Soil Biodiversity**" under the Convenorship of Dr.S.C.Gupta,HS Soil Science and Chairmanship of Dr.H.D.Verma,Dean Sehore with special guest lecture of Dr.S.K.Verma Ex-Dean COA Gwalior. Farmers, Students Scientists/Professors and officers of Deptt of Agriculture participated in online program on 5th Dec. Major focus was on judicious use of fertilizers and Agrochemicals, checking soil erosion and enhancing soil organic carbon by adopting various means.

- Webinar on "Entrepreneurship Opportunities Through Alternate Horticulture Based Farming System" was organized on 16/07/2020 at RVSKVV Gwalior and inaugurated by Prof. S.K. Rao , Hon'ble Vice Chancellor, RVSKVV, Gwalior Patron, in presence of Prof. V.S. Tomar Ex. Vice Chancellor, RVSKVV,Gwalior and JNKVV, Jabalpur, Dr. M.P. Jain, Director Research Services, RVSKVV, Gwalior and University officers and Scientific staff of RVSKVV, Gwalior.
- **Soybean Field day**: Soybean field day was organized at Village Atralia, Block Ichhawar, Distt. Sehore, on 01/10/2020. In this programme 25 farmers were participated. Dr.H.D.Verma, Dean, Dr. M.D.Vyas, Principal Scientist, Dr. G.K.Nema, Scientist, Shri T.Singh, Technical Officer and Shri Pawan Singh Maravi were present in the programme. Dr. Verma emphasized in his address that the farmers should adopt new technologies to improve their productivity. Dr. Vyas and Dr Nema delivered lectures on improved package of soybean and chickpea, respectively. Shri Trilochan Singh conducts the programme. Dean and farmers viisited the FLDs planted in this village and interact to farmers regarding the technology given by the college. Farmers were satisfied and convienced with the technology.

MoUs Signed:

- MoU between various Firms/companies and RVSKVV, Gwalior for develop a Seed Development Framework initially for the State of Madhya Pradesh, India, with the potential for expansion to other regions by developing and setting up a central place for the conservation of Germplasm/ Genepool and promising advancedlines of arboreums and hirsutums in "Centre of Excellence" at the CoE (Centre of Excellence), Khandwa, MP, And;

1. **Partech Seeds Pvt. Ltd.**,, Makarba, Ahmedabad, Gujrat-51, And;

2. **Vasudha Pratibha Syntex Ltd.**, Scheme No. 54, Vijay Square, Indore, Madhya Pradesh- 425010, And;
3. **Chetna Organic Agriculture Producer Company Limited (COAPCL)**, Vittalwadi,Hyderabad-500029,Telengana,India, And;
4. **Aga Khan Foundation**, 6, BhagwanDasRoad,NewDelhi-110001,India, And;
5. **Research Institute of Organic Agriculture Forschungsinstitut für biologischen Landbau (FiBL), Department of International Cooperation**, FiBL,Ackerstasse113,Postfach219,5070 Frick, Switzerland, And;
6. **Action for Social Advancement (ASA), The Farmers House**, Tulip Greens, Village Mahabadia, Kolar Road, Bhopal-462042, Madhya Pradesh, India, And;
7. **Solidaridad Network**, A-5, 1st Floor, Shankar Garden, Main Najafgarh Road, Vikaspuri, New Delhi-110018,India, And;
8. **WWFIndia**, 172- B, Lodhi Estate, New Delhi-110003, And;
9. **Organic Cotton Accelerator (OCA)**, Watersteeg 3, 1012 NV, Amsterdam (NL), And;
10. **Laudes India LLP**, 307,Vatika City Point, MGRoad, Gurgaon-122001,Haryana

- Sign the MoU between India Meteorological Department (IMD) and RVSKVV, Gwalior under Gramin Krishi Mausam Seva (GKMS) scheme.
- Sign the MoU between M. P. State Agril Marketing Board, Bhopal and RVSKVV, Gwalior for two projects namely **"Construction of Auditorium and sangosthi Hall and other work"** with an outlay of 1189.61 lakhs and **"Establishment of gene bank at Biotechnology Centre"** with an outlay of 925.00 lakhs.

- **MoU:** The MoU has been signed between ICAR-National Research Center for Grapes and Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior on 25th August 2020 for transfer of technology, research and training purpose. Through this MoU our university student and other stakeholders will directory be benefited.

4.8 Text/Reference Books/Manual/ Book Chapters

S.N.	Author(s)	Book Name	Year	ISBN No./ Ref No
1	SB Singh, AK Badaya & SN Upadhayay	TOXICOLOGY OF INSECTICIDES	2019	BIOTECH BOOKS (ISBN:978-81-7622-459-8)
2	Dr. Nitin Soni Co Author	Training manual developed on processing and value addition of Non-Alcoholic beverages and spices	2020	RVSKVV Pub. No. 104/2019
3	Dr. R.P. Patel, **B.K. Patidar** , S.B. Singh, K. Alam Khan and R. Dubey	मशरूम उत्पादन, प्रसंस्करण एंव विपणन	2020	RVSKVV Pub. No. 106/2019

Text/Reference Books:

S.No.	Author(s)	Book Name	Year	ISBN No.
4	Prajapati, RA and Charurvedi, R	Recent Trends in Fiction Writing in India	2020	ISBN 978-1-64951-463-9

Book Chapters

S.N.	Author (s)	Title	Book Name	Page No.	Year	ISBN No.
1	Dr. Nitin Soni	Commercial production of grapes for developing the entrepreneur skills	21 Days Innovative Training Programme (ITP) on "Recent Technologies of Agribusiness Management and Agri Entrepreneurship" Venue: NADCL, Baramulla, J & K - 193103(THROUGH ONLINE MODE)During: 8th to 28 th October-2020	-	2020	-
2	Dubey R., Kushwah, SS and Mishra, A..	Recent advances in organic farming with special reference to weed management.	Advanced Agriculture	93-108.	2020	ISBN 978-93-88879-99-6 (HB)
3	Mishra, A , Dubey R., Pant, P, Mehta, P, Shinde, R and Rathod, S.	Nano clay: A boon for enhancing agriculture productivity	Advanced Agriculture	291-313	2020	ISBN 978-93-88879-99-6 (HB)

4.9 Activities of Seed Production Farms:

RVSKVV is also making sincere efforts to generate cutting edge technology for enhancing crop productivity. Thrust is also farm seed replacement in the state by producing quality seeds of important crops. It is worthwhile to mention that RVSKVV has produce 6895.50 q. **seeds with different crops during 2020-21** which helped the farmers in a big way for seed replacement and thereby enhancing the productivity of crops.

The seed activities in the University are managed with the help of twenty seven seed farms, which are located in twenty four districts and six agro-climatic zones of Madhya Pradesh. Out of the total farm area of 1210.85 ha., only 64.45 % (780.3 ha.) is under cultivation. Among the cultivated area 13.39 % and 34.59 % is irrigated and partially irrigated, respectively. Rest of the cultivated area is under rainfed farming.

The area under plantation crop is about 82.02 ha. Rests of the farm area is fallow or pasture land or occupied by road and buildings.

Breeder seed produced in Kharif and Rabi crops:

S. No.	Crops	Qty. (q.)
(A) Kharif crops		
1.	Soybean	1724.30
2.	Green gram	28.14
3.	Black Gram	21.62
4.	Pearl Millet	-
5.	Sorghum	1.25
6.	Ground Nut	-
7.	Pigeon Pea	14.50
8.	Paddy	346.66
9.	Til	14.55
Total (A)		**2151.0**
(B) Rabi crops		
1.	Wheat	2295.80
2.	Gram	2396.80
3.	Lentil	34.50
	Pea	6.0
4.	Rapeseed and Mustard	11.40
	Safflower	-
	Maize	-
Total (B)		**4744.50**
Grand Total (A+B)		**6895.50**

5. EXTENSION ACTIVITIES:

RVSKVV, Gwaliorhas 27 KrishiVigyanKendras (KVKs) under its jurisdiction established with the financial support of ICAR.Out of which, 22 are under the administrative control of the University and five under NGOs/ICAR institute, which are functioning under technical guidance of Directorate of Extension Services of the University. The Directorate is committed to serve the farmers through its well organized network of KrishiVigyanKendras, which play a vital role in dissemination and transfer of recent emanated research technologies in agriculture, horticulture, livestock production and allied fields.

The KVKs are assessing the technological needs of the farmers of the districts and revalidating the technology for adoption through On Farm Testing. The KVKs are disseminating technologies and strengthening the farmers through, Front Line Demonstrations, Training Programmes for Farmers and Farm Women, Extension functionaries and Vocational Training for Rural Youth and other regular ExtensionActivities in selected villages of the concerned district. Thus, they contribute in minimizing the gap between prevailing farmers' yield and production potential in specific area.

Mission

Directorate of Extension Services is committed to serve the farmers andto achieve the motto of the University, which isto reach the un-reached through its extension system. The main objectives of the Directorate are:

1. Transfer of technology, assessment, application, refinement and providing feedback to the researchers.
2. Up gradation of knowledge and skill of extension functionaries as well as farming community.
3. Development and dissemination of technology through print and electronic media for mass reach.
4. Catering the needs of farming communities through single window system.
5. Linkage with line departments, concerned institutions and NGOs.
6. Reviewing the activities of KVKs and technological backstopping of KVK scientists and help in formulating action plan.
7. Popularization of low draft improved agricultural implements.

KrishiVigyanKendras

Twenty two KrishiVigyanKendras of RVSKVV are located at thedistricts of Agar-Malwa, Alirajpur, Ashok Nagar, Badwani, Bhind (Lahar), Datia, Dewas, Dhar, Dhar II (Manawar), Guna (Aron), Gwalior, Jhabua, Khandwa, Khargone, Mandsaur, Morena, Neemuch, Rajgarh, Shajapur, Sheopur, Shivpuri and Ujjain. KVK Bhopal is workingunder

administrative control of ICAR-CIAE and KVKs in districts Indore, Sehore, RatlamandBurhanpur are working under the aegis of reputed NGOs, with technical backstopping of RVSKVV. KVKs facilitate the process of assessment of technology through OFT, skill upgradation through training programmes, and technology dissemination through method and result demonstrations, KisanMelas, Seminars and mass campaigns etc.

Agro-climatic Zone wise Location of KVKs

Agro-climatic Zone	Features	District / KVK's under the Zone
Gird Zone	Semi-arid climate, situated between 152-224msl, annual rainfall 566-977 mm and soils are Alluvial medium black, mixed red black and red yellow in colour.	Sheopur, Morena, Bhind, Gwalior, Shivpuri (Partial), Guna (Partial) and Ashok Nagar
Bundelkhand	High temperature, situated between 266-560msl, annual rainfall 750-1200mm with shallow clayey loam soil	Datia, Shivpuri (Partial)
Malwa Plateau	Semi-arid climate, situated between 450-675 msl , annual rainfall 800-1200mm, soil is medium to deep black (vertisol)	Neemuch, Mandsaur, Ujjain, Shajapur, Rajgarh, Dewas and Dhar (Partial), Indore Ratlam and Agar-Malwa
Jhabua Hills	Undulated topography, situated between 450-700 msl, erratic rainfall (600-800mm) and shallow to medium skeletal gravely soil	Alirajpur, Jhabua and Dhar (Partial)
Nimar Valley	Hot and dry weather, situated between 450-700 msl, less annual rainfall (600-800mm), soil is deep black clayey (vertisol)	Badwani, Khargone, Khandwa, Burhanpur
Vindhyan Plateau	Hot humid climate, undulated topography, situated between 350-600 msl, annual rainfall, 1000-1200mm and medium black soil.	Guna (Partial), Bhopal, Sehore

Mandate of KVK

The major mandate of KVKs is the assessment, refinement and demonstration of technology/ products.

The major activities of KVKs are as follows:

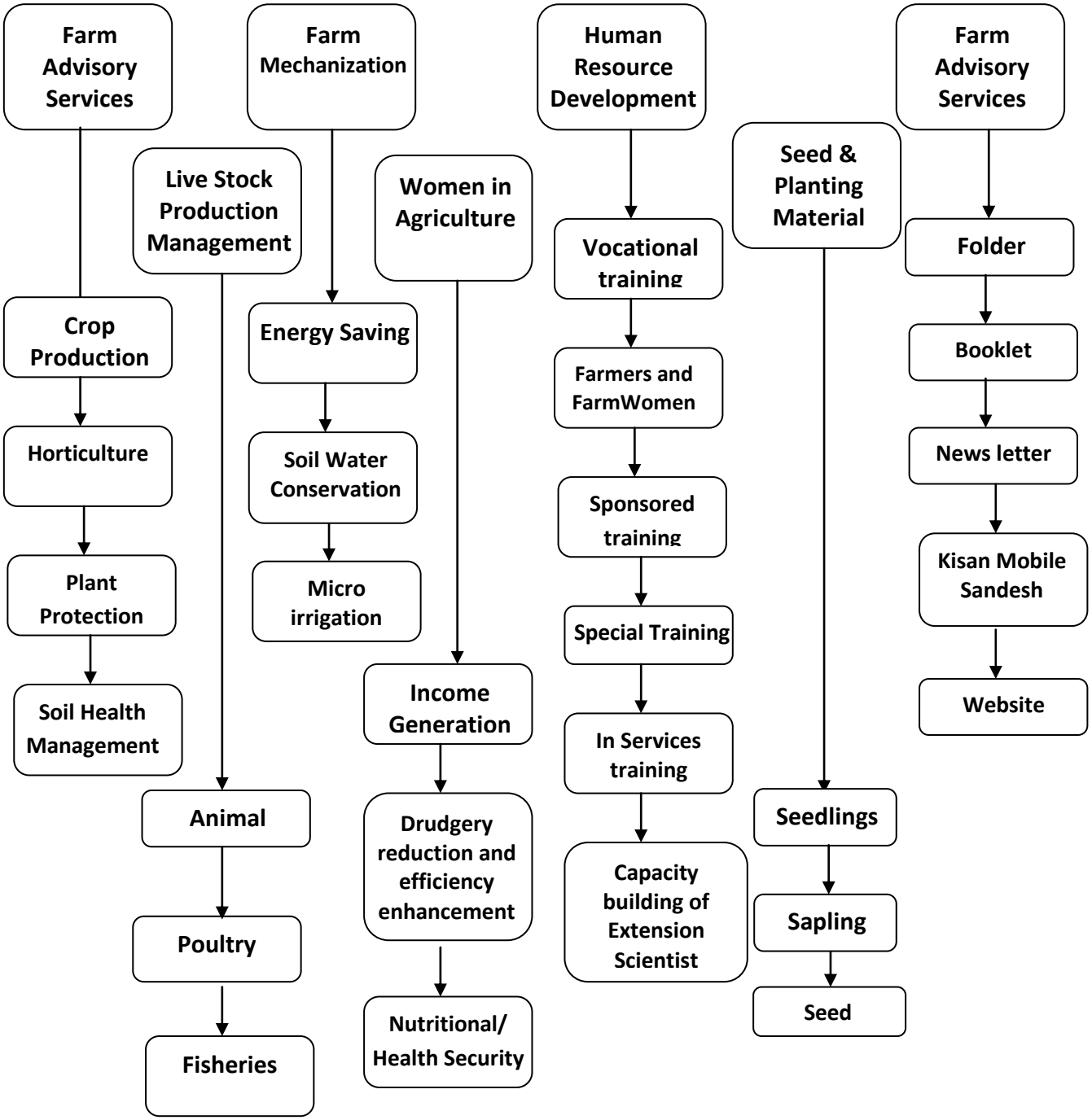
- On farm testing for assessing the suitability of technology farming systems.
- Frontline demonstrations to establish production potentials of newly released technologies on farmers' fields and provide feedback.

- Training of farmers and farmwomen to upgrade their knowledge and skills in modern agricultural technologies and training of extension personnel to orient them in the frontier areas of technology development.
- Work as resource and knowledge centre of agricultural technologies for supporting initiatives of public, private and voluntary sector for improving the agricultural economy of the district.
- Create awareness about frontier technologies through a number of extension activities *viz*: Farmer fair, Field day, Campaign, Ex-trainees meet, etc.
- For enhancing the productivity through increased seed replacement rate and use of quality planting material KVKs are taking up the activities of producing quality seed and planting material.

Thrust Areas

- Doubling Farmers Income by 2022
- Development of agri-preneurship among farmers
- Enhance crop productivity through, intensive vocational trainings of farmers, farm women and rural youth.
- Demonstrate and disseminate the integrated approach encompassing the feasible components of farming and related technologies targeting towards enhancing the farm family income.
- Crop diversification with suitable oilseed, pulse, fruit and vegetable cultivation.
- Testing of early maturing high yielding varieties of major crops on farmer's field.
- Awareness regarding different methods of water harvesting and conservation including construction of small water retention structures (Rain-Water harvesting)
- Soil fertility improvement to sustain soil health.
- Integrated nutrient management in different crops.
- Popularization of resource conservation technologies.
- Post harvest value addition and entrepreneurship development for agricultural produce.
- Balanced feeding and reproduction of livestock and poultry.
- Clean milk production and processing of dairy products.
- Promotion of exotic and off-season cultivation of vegetables, medicinal and aromatic plants.
- Promotion of organic farming.
- Use of improved implements for drudgery reduction.
- Demonstrations of improved farm – machinery to farmers.
- Demonstrations on utilization of innovative traditional knowledge of the farmers.

Service Provided by the Directorate of Extension Services / KVKs



KVKs identified as Centre of Specialization

S. No.	Name of KVKs	Specialization
1.	Agar Malwa	New KVK, hence not specialised yet
2.	Alirajpur	New KVK, hence not specialised yet
3.	Aron (Guna)	Coriander Production Technology
4.	Ashok Nagar	Durum Wheat Production Technology
5.	Badwani	Chilli Production and Value addition of spices
6.	Datia	Natural Resource Management
7.	Dewas	Integrated Farming System
8.	Dhar	High tech vegetable cultivation
9.	Dhar II (Manawar)	New KVK, hence not specialised yet
10.	Gwalior	• Hi tech Horticulture • Vermi-composting Technology
11.	Jhabua	Kadaknath rearing in Integrated Farming System
12.	Khandwa	Cotton Production Technology
13.	Khargone	Pomegranate & Watermelon Production Technology
14.	Lahar(Bhind)	Crop diversification
15.	Mandsaur	Seed spices
16.	Morena	• Apiculture • Conservation agriculture
17.	Neemuch	Garlic Processing Technology
18.	Rajgarh	Hi tech fruit nursery
19.	Shajapur	Mandarin Production Technology
20.	Sheopur	Management of soil & water resources & IFS
21.	Shivpuri	Mechanization in ground nut and Hi - tech tomato production
22.	Ujjain	Integrated Nutrient Management
23.	Bhopal	Farm mechanization
24.	Sehore	Integrated Farming System
25.	Ratlam	Dairy Management and Dairy Technology
26.	Indore	Organic Farming
27.	Burhanpur	Banana Production Technology

1. Major Achievements of KVKs - 2020

1.1 On Farm Trial (OFT)

The KVKs conducted 453 On Farm Trials for assessment and refinement of new technologies generated by RVSKVV, Gwalior, other Universities and ICAR Institutes as per local needs and micro farming situations. A total of 6183 farmers were the direct beneficiaries of OFTs as their fields/units/animals were chosen for conducting the trials. Details of OFTs conducted by KVKs under the DES are given below:

A. Institutions wise OFTs conducted on crops and enterprises during 2020-21

Host Institute	No. of OFTs	Beneficiaries
a. OFT on Crops		
RVSKVV	347	4854
ICAR & NGO	76	1049
Sub Total	**423**	**5903**
b. OFT on Enterprises		
RVSKVV	16	145
ICAR & NGO	14	135
Sub Total	**30**	**280**
Grand Total	**453**	**6183**

Thematic area wise details of OFTs conducted on crops and enterprises are described below.

B.Thematic area wise details of OFTs conducted during 2020-21

Thematic Area	No. of OFTs	No. of Beneficiaries
Cropping Systems	2	10
Varietal evaluation	78	635
Improved Implement/Farm Machinery	21	163
Integrated Crop Management	35	325
Integrated Disease Management	15	122
Integrated Pest Management	47	401
Integrated Nutrient Management	46	403
Natural Resource Management	6	96
Resource Conservation Technology	12	86
Indigenous Technology Knowledge (ITK)	9	65
Soil Fertility Management	22	1325
Weed Management	18	169
Drudgery Reduction	9	98
Nutritional Security	19	189
Income Generation	8	89
Information and Communication Technology	20	875

(ICT)		
Agro-forestry	5	25
Horticulture crop	37	287
LPM (Nutrition, Disease Management)	24	237
Post Harvest Management	3	25
Organic Farming	3	25
Extension (Awareness, Convergence, Group Approach etc.)	7	485
Integrated Farming System	1	5
Others (Poultry, fisheries etc)	6	43
Total	**453**	**6183**

1. 2: Frontline Demonstrations (FLD)

Frontline demonstrations are conducted to demonstrate the potentials of recent and location specific proven technologies of agriculture and allied fields among farming community and extension functionaries for up-scaling in the larger area as well as for generating the production data along with the feedback for research system and planners. During the reporting year, a total number of 2680 beneficiaries got direct benefitsthrough FLDs conducted on various oilseeds, pulses, cereals, vegetables crops and cash crops, agro forestry and other improved farm machineries covering the total area of 924.30 ha. In addition to these FLDs, 2875 beneficiaries got direct benefits through demonstrations conducted in 1159.20 ha area on various oilseed and pulse crops under cluster frontline demonstrationsprogramme. Moreover, demonstrations on 08 important income generating enterprises like LPM, kitchen garden, home science aspects, poultry, farm machinery, vermicompost etc. were also conducted forbenefitting 1428 stakeholders directly. Details of FLDs are provided in next three tables.

A. Crop wise details of FLDs Conducted during 2020-21 by KVKs

S. No.	Crop	Area (ha)	No. of Beneficiaries	% increase
a. Cereals				
1.	Wheat	179	467	16.19
2.	Maize	49.8	158	28.17
3.	Pearl millet	12.0	10	14.0
4.	Rice	10.0	25	18.34
5.	Sorgham	16.0	40	56.37
6.	Barley	4.0	10	-
b. Pulses				
1.	Black Gram	43.4	123	34.77
2.	Chickpea	119	287	23.68
3.	Gram	18.6	38	12.64
4.	Pigeon pea	27.0	78	24.96
5.	Green Gram	2.0	10	20.0

6.	Urd	6	15	27.23
c. Oilseed				
1.	Soybean	119.9	307	31.42
2.	Mustard	50.9	129	15.55
3.	Groundnut	2.0	10	1.60
4.	Sesame	2.0	5	30.20
d. Vegetables				
1.	Ash gourd	3.0	15	43.62
2.	Bottle gourd	3.0	20	13.99
3.	Cabbage	2.0	20	19.17
4.	Cauliflower	9.5	39	14.33
5.	Potato	3.0	10	19.33
6.	Cucumber	1.0	10	15.62
7.	Mushroom	10.0	10	100.0
8.	Sponge gourd	3.2	8	28.26
9.	Tomato	13.1	58	28.50
10.	Other Vegetables	26.5	125	132.0
e. Spices				
1.	Azotobacter	10.0	10	25.71
2.	Chilli	35.2	100	25.20
3.	K. Onion	7.6	28	31.16
4.	Onion	32.9	142	13.49
5.	Coriander	13.2	43	12.34
6.	Fenugreek	5.8	21	10.24
7.	Garlic	32	127	15.59
8.	Turmeric & Ginger	0.5	5	-
9.	Nigella	05	10	66.89
f. Fibre Crops				
1.	Cotton	20.0	47	19.53
g. Flower Crops				
1.	Marigold	6.0	20	22.05
h. Medicinal Crops				
1.	Ajawain	5.0	10	45.32
i. Fruit Crops				
1.	Banana	1.0	45	5.07
2.	Guava	4.0	10	20.78
3.	Mandarin	2.0	10	19.30
4.	Papaya	4.0	15	65.22
5.	Watermelon	4.0	10	24.0
Total		**924.30**	**2680**	**-**

B. FLDs conducted on enterprises during 2020-21

S. No.	Enterprise	Area (ha)/No. of unit	No. of Beneficiaries	% increase
1.	L. P. M.	227	219	20.89
2.	Farm Machinery	70.8	156	53.25
4.	Fish	02	08	246.0
5.	Poultry	50	50	35.22
6.	Kitchen Garden	1.7	151	52.15
7.	Home Science	218.6	714	40.19
8	Vermicompost	95	130	42.14
Total		**665.10**	**1428**	**-**

C. Cluster Frontline Demonstration (CFLD) on Pulses and Oilseed conducted by KVKs during 2020-21

S.No.	Cluster Crop	Variety	Area (ha)	No. of Beneficiaries	% increase
a. Pulses					
1.	Black Chickpea	MASH 479	40	100	38.22
2.	Black Gram	PratapUrad -1	35.2	113	58.92
		PU 1	40	100	41.57
		PU 31	40.5	140	30.07
		Sekhar 2	20	50	76.41
3.	Chickpea	RVG-201	122	305	33.24
		RVG-202	379.5	900	30.31
		RVG-203	50	125	30.20
4.	Pigeonpea	Rajeshwari	5.2	13	20.31
		PA 291	20	50	7.56
		TJT-501	25.2	63	34.16
5.	Field pea	IPFD 4-9 and IPFD 12-2	20	50	
6.	Moongbean	IPM 205-7	16	40	85
		MH-421	10	25	33.18
7.	Green Gram	Shikha	10	25	20.60
Total			**833.6**	**2099**	**-**
b. Oilseed					
1.	Mustard	Girraj	60	150	35.06
		IJ 31	40	100	18.63
		RVM-1	30	75	
		NRCHB 101	550	1375	22.11
		PM 30 & RVM 2	124	310	9.68
		PM-25	20	0	0

		RH 0749	20	50	37.76
2.	Soybean	RVS 2001-4	30	75	
		JS-2029	30	75	17.93
		JS-2034	145.2	365	40.76
		JS-2069	20	50	26.97
		RVS 2001-4	60	150	22.54
3.	Sesame	TKG 308	10	50	-
4.	Ground nut	GG-20	20	50	20
Total		**-**	**1159.2**	**2875**	**-**

1.3: Training Programmes

Training has been considered a key component for updating the knowledge and inculcating new skillsamong the participants. The great emphasis has been given on organizing trainings both for the farmers as well as for the extension workers working at grassroots level. A total of 1951 trainingprogrammes were organized during the year 2020 involving50211beneficiaries including farmers and farm women, rural youth, extension personnel and sponsored from different agencies.

Training Programmes conducted by KVKs during - 2020

S. No.	Name of training	No. of Courses	Beneficiaries		
			Male	Female	Total
1.	Farmers & Farm Women	1322	25861	8680	34541
2.	Rural Youth	159	3447	1043	4490
3.	In-Service /Extension Activities	149	2402	1468	3870
4.	Vocational	100	1497	595	2092
5.	Sponsored	221	3469	1569	5218
Total		**1951**	**36856**	**13355**	**50211**

1.4: Other Extension Activities

A. Extension Activities

With the objective of creating awareness about advancedagricultural technologies, a large number of extension activities are being regularly organised by KVKs at their campuses and in the villages. These extension activities include method demonstrations for small group to KisanMelas for huge gathering. It includes use of old communication techniques of poster exhibition to latest technique of using SMS and social media for transfer of technology. Broadly, these activities are for creating awareness and providing advisory based services like farm advisory services, lectures delivered by resource persons,animal health camps and vaccination camp, exhibitions, extension literature and

popular article, media based activities like CD/DVD, film show, news paper coverage, radio talks and TV talks, meeting based like ex-trainee Sammelan, celebration of important days, club meet, farmers' seminar, field day, group meet, Gosthi, Mela and SHG meeting etc.The KVKs are showcasing the available technologies to the district level extension functionaries and farmers through a variety of events and activities. A total of 20029 extension activities were organised by the KVKs during 2020 benefitting 502095 beneficiaries as given in table below;

Extension Activities Conducted by KVKs during - 2020

S. No.	Activity	No. of Activities	Beneficiaries			Total
			Male	Female	Extension Officials	
1	Advisory Services	3678	226512	25411	921	252844
2	Agri-Mobile Clinic	363	499	22	17	538
3	Animal Health Camp	28	664	67	91	822
4	Awareness Programme	129	4497	1484	224	6205
5	Celebration of Important /Special Days	329	11683	5581	881	18145
6	Diagnostic Visits	460	7392	849	288	8529
7	Exhibition	71	13191	2272	640	16103
8	Exposure Visits	66	1647	138	77	1862
9	Extension Literature	116	16142	2046	167	18355
10	Ex-trainees Sammelan	43	1278	213	86	1577
11	Farmers Visit to KVK	10683	29369	6443	868	36680
12	Farm Science Club	12	337	49	3	389
13	Farmers Seminar/Workshop	23	702	53	45	800
14	Field Day	219	7017	1406	244	8667
15	Film Show	163	4002	930	138	5070
16	Group Meetings/Interface	39	884	287	80	1251
17	Group Discussion	85	1610	424	80	2114
18	Kisan Ghosthi/Sammelan	139	5652	1010	356	7018
19	Farmer Fair	109	45679	2750	303	48732
20	Krishi Mahotsav	05	144	44	08	196
21	Lectures Delivered as Resource Persons	719	19506	5000	970	25476
22	MahilaMandals Conveners' Meetings	72	143	745	53	941
23	Method Demonstrations	182	1543	570	119	2232
24	Mushroom Mela	01	104	101	0	205
25	PradhanmantriPhasalBeemaYojana	46	1967	311	94	2372
26	PM Kisan Samman Nidhi	01	91	14	16	121
27	Scientific Visit to Farmers Field	1489	11302	1684	348	13334
28	SHG Conveners' Meetings	66	800	436	56	1292
29	Soil Health Camp	31	1486	218	112	1816
30	Soil Test Campaigns	34	1656	420	100	2176
31	SwachhtaAbhiyan (Sanghosthi)	12	339	191	18	548
32	Technology Week	35	2832	687	125	3644
33	Others	581	10836	1074	131	12041
Total		**20029**	**431506**	**62930**	**7659**	**502095**

B. Mass Media used for Wide Publicity

Besides extension activities mentioned above, a variety ofmass media being used for wide publicity and adoption of various agricultural technologies. The KVK wise details of mass media are given in table below;

KVK	CD/ DVD	Radio Talk	TV Talk	Newspaper Coverage	Farmers' Fair	Extension Literature	Internet (You Tube)	Social Media (Whats App, Facebook, Twitter etc.)	Total
Agar Malwa	0	01	0	42	0	0	0	24	**67**
Alirajpur	0	02	0	10	01	04	0	35	**52**
Ashoknagar	10	16	02	10	01	04	02	50	**95**
Barwani	02	0	0	65	0	20	05	108	**200**
Lahar (Bhind)	0	0	0	24	0	0	0	26	**50**
Datia	0	01	02	34	0	10	0	25	**72**
Dewas	0	10	08	26	0	05	0	0	**49**
Dhar	0	08	02	63	02	08	03	45	**131**
Manawar (Dhar II)	0	0	0	25	0	0	0	53	**78**
Aron (Guna)	02	04	01	18	02	0	0	18	**45**
Gwalior	0	05	07	86	0	0	0	26	**124**
Jhabua	0	04	01	36	0	87	0	18	**146**
Khandwa	0	02	0	25	0	0	02	0	**29**
Khargone	0	0	0	20	0	0	0	100	**120**
Mandsaur	17	0	0	19	02	14	0	35	**87**
Morena	0	03	0	12	01	0	0	50	**66**
Neemuch	0	10	0	48	0	03	03	12	**76**
Rajgarh	0	02	02	13	0	05	01	06	**29**
Shajapur	0	06	07	53	0	0	0	127	**193**
Sheopur	0	05	0	16	0	04	0	112	**137**
Shivpuri	01	10	0	15	0	02	0	30	**58**
Ujjain	18	10	04	35	0	05	03	98	**173**
Bhopal	0	0	01	0	0	0	0	0	**01**
Burhanpur	0	0	02	25	0	03	0	25	**55**
Indore	0	03	01	0	0	0	08	58	**70**
Ratlam	0	07	01	50	0	25	0	298	**381**
Sehore	0	02	07	87	0	0	01	19	**116**
Total	**50**	**111**	**48**	**857**	**09**	**199**	**28**	**1398**	**2700**

1.5: Production and Supply of Technological Inputs by KVKs

Timely and adequate availability of the quality seed and planting material is very essential to ensure better yield, but timely and quality supply of it remains as a major constraints to the farmers. Therefore, it was taken as a challenge and appropriate steps were taken at the KVKs for helping the farmers in this regard. The KVKs produced 5028.42 q seed of different crops during 2020-21. Moreover, they also produced and sold 896388 **seedlings and saplings** of various vegetables, fruits, ornamental and medicinal plants. The details of various technological inputs and produced are as follows;

A. Seed Production

Crop	Total SeedProduced(q)
a. Pulses, Oilseed and Cereals	
Chickpea	1498.19
Wheat	792.89
Green Gram	60.0
Soybean	1516.0
Black Gram	881.9
Cotton	22.0
Sorghum	0.50
Rice	18.0
Mustered	16.81
Barley	60.0
Coriander	10.0
Pigeon pea	20.5
b. Vegetables	
Amaranths (Chaulai)	0.59
Sponge Gourd (Gilki)	0.91
Spinach	0.92
Okra	0.62
Garlic	3.85
Runner Bean (Sem)	0.24
Ginger	20.0
Bottle Gourd	0.30
Fenugreek	104.2
Total	**5028.42**

B. Planting Material (Seedlings/Saplings) Production

Crop	Quantity (No.)
a.Vegetables	
Tomato	239209
Brinjal	64537
Chilli	239354
Cabbage	42963
Cauliflower	41895
Onion	110220

Sweet Potato	100
Capsicum	40000
b.Fruit Plants	
Mango	1539
Lemon	2822
Pomegranate	505
Guava	8566
Karonda	397
Jackfruit	1441
Custard Apple	5929
Jamun	895
Aonla	80
Drum Stick	20944
Water Melon	16000
Bans	10
Cashew nut	91
Beal	125
Citrus	133
Papaya	12660
Orchid	400
MeethaNeem	08
c. Ornamental plants	
Marigold	28850
Ashok	47
Rose	126
Gudhal	13
Jasmine	04
Champa	17
Gladiolus	5000
Mogra	14
Kaner	06
Tuberose	1000
Golden Durenta	655
Other Plants	6000
d. Forest plants	
Bargad	02
Kumut	91
KadwaNeem	363
Bamboo	291
Gulmohar	336
Khamer	881
Khejadi	27
Karanj	136
Shami	27
Pipal	171
Imali	642
Amaltas	21

Sesam	713
Kesiasama	59
Siras	45
e. Medicinal Plants	
Gilloy	28
Total	**896388**

C. Bio Products

Bio Product	Total Quantity produced
Vermi compost	5251 q
Earth Worm	1105 kg.
Trichoderma	106 kg
Bio Pesticide(Panchgavya, Jiwamrita, Bijamrita etc.)	10050 L
Azolla	1818.36 kg

D. Livestock and Products

Bio Product	Total Quantity produced
Dairy animals (No.)	111
Milk Yield - Cow, Buffalo etc. (Litre)	50661
Fish (Kg)	500
Poultry- Birds (No.)	4799
Chicks etc. (No.)	11335
Poultry - Egg (No.)	5893

1.6 Soil and Water Sample Analysed

Soil and water testing is an import activity of KVK for improving the soil fertility and sustainability of agricultural production. KVK wise details of soil samples collected, analyzedand numbers of soil health card distributedamong farmers have been given hereunder;

a. Status of Soil Sample and Soil Health cards

KVK	Status of establishment of Soil testing Laboratory - (Y/N) if yes, mention year	Sanctioned	Procured	Collected by KVKs	Provided by Dept./ DDA	No. of Samples Analyzed			No. of Farmers Benefited			No. of Villages Covered	Amount Realized	Soil Health Card Distributed to the Farmers by KVK (No.)	
						by KVKs		By Department	by KVKs		By Department			Through Mini Soil Testing kit	Through Soil testing laboratory
						Mini Soil Testing Kit	Soil Testing Lab		Mini Soil Testing Kit	Soil Testing Lab					
Agar Malwa	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alirajpur	N	0	0	300	0	0	0	0	0	0	0	07	0	0	0
Ashoknagar	Y	2	2	200	0	200	0	0	200	0	0	10	0	0	0
Barwani	Yes	0	0	500	0	175	212	0	175	212	0	48	0	175	212
Bhind	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Datia	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dewas	2012	0	03	204	0	204	0	0	165	0	0	29	0	0	0
Dhar	Yes	02	02	1000	934	870	1064	10201	870	1064	10201	1420	0	712	822
Manawar (Dhar II)	No	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Guna	Yes, 2005	1	1	257	0	57	200	0	57	200	0	17	11250	57	200
Gwalior	-	0	0	03	0	0	0	0	0	03	0	03	0	0	0
Jhabua	Yes	2	2	1375	0	175	1200	0	175	1200	0	7	0	175	1200
Khandwa	Y,2005	2	2	442	0	40	432	2767	40	432	2767	113	45000	40	2899
Khargone	Y, 2004	1	1	789	0	789	0	0	789	0	0	32	160000	789	0
Mandsaur	Yes	2	2	550	0	550	0	235	550	0	235	17	0	550	0
Morena	Yes, 2005	0	0	430	0	0	430	0	0	430	0	15	0	0	430
Neemuch		2	2	595	6386	595	0	10550	595	0	25832	799	0	595	0
Rajgarh	Yes	1	1	1000	0	1000	0	0	1000	0	0	15	0	1000	0
Shajapur	Yes	2	2	539	4128	539	4128	389	0	829	389	0	829	47	85
Sheopur	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shivpuri	No	2	2	200	0	238	0	0	238	0	0	152	0	238	0
Ujjain	Yes	1	1	700	0	0	700	0	0	700	0	25	147425	0	700
Bhopal	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Burhanpur	N	2	2	150	00	150	00	00	150	00	00	2	00	150	00
Indore	2005	2	2	205	0	185	20	0	185	20	0	11	12290	185	20
Ratlam	Y	2	2	0	0	0	0	0	0	0	0	0	0	0	0
Sehore	Yes & 2012	0	0	290	0	0	205	2587	0	156	2587	142	0	0	205
Total	**-**	**26**	**29**	**9729**	**11448**	**5767**	**8591**	**26729**	**5189**	**5246**	**42011**	**2864**	**376794**	**4713**	**6773**

b. Details of water samples analyzed

KVK Name	No. of Samples	No. of Farmers	No. of Villages	Amount Realized	Test Report Distributed to the Farmers (No.)
Jhabua	11	11	4	-	11
Rajgarh	50	50	10	-	50
Note: Other KVKs not analyzed water samples					

1.7: Footfall of farmers in KVKs -2020

The table below gives a KVK wise complete account of farmers', VIPs and officials visited the centre for various purposes around the year. It is observable that the KVKs establish its place as a scientific agricultural institution at district level providing functional solutions to the farmers on various agricultural issues.

Name of KVK	**Footfall during 2020**			
	No. of Farmers	**No. of officials**	**No. of VIPs**	**Total**
AgarMalwa	139	25	0	164
Alirajpur	624	38	06	668
Ashoknagar	300	25	6	331
Barwani	2857	51	14	2922
Lahar (Bhind)	308	36	01	345
Datia	1406	19	06	1431
Dewas	875	57	06	938
Dhar	12562	143	24	12729
Manawar (Dhar II)	Not reported			
Aron (Guna)	845	42	02	889
Gwalior	7298	146	12	7456
Jhabua	1608	65	4	1677
Khandwa	2412	18	1	2431
Khargone	584	32	4	620
Mandsaur	1779	35	4	1818
Morena	2120	175	12	2307
Neemuch	2352	56	0	2408
Rajgarh	938	92	10	1040

Shajapur	2551	23	10	2584
Sheopur	187	36	0	223
Shivpuri	680	72	16	768
Ujjain	1653	45	13	1711
Bhopal	2619	281	3	2903
Burhanpur	1183	15	02	1200
Indore	1476	45	2	1523
Ratlam	1805	93	13	1911
Sehore	2882	232	08	3122
Total	**54043**	**1897**	**179**	**56119**

1.8: Initiatives on application of Information Communication Technology (ICT) for ToT

Kisan Mobile Advisory (KMA) is the easiest ICT tool working successfully for dissemination of latest information to the farmers and farm women. This is an unique programme for making linkages between different stakeholders who are key players for making agriculture more productive.During the year 2020, a total of 1439 farm advisory were issued by the KVKs from which 1310966beneficiarieswere directly benefited.

In addition, KVKs are also providing audio, video and photo based advisories through Facebook, WhatsApp, Twitter and other popular social media platforms given in following tables.

A. Status of Kisan Mobile Advisory (KMA) - 2020

Name of KVK	Number of calls received	No. of Advisory Sent	No. of farmers received messages	Total no of villages in District	No of village Covered by KVK through KMA
Agar Malwa	0	0	0	0	0
Alirajpur	385	06	7866	-	-
Ashoknagar	4718	30	32000	912	912
Badwani	1744	42	30538	693	693
Bhind	405	27	21627	877	475
Datia	254	15	124000	610	610
Dewas	273	26	65334	1034	1034
Dhar	1616	60	128632	1576	1270
Manawar-Dhar II	0	09	16608	340	340
Guna	2145	161	65570	1260	1260

Gwalior	324		26500	717	717
Jhabua	258	83	11986	813	813
Khandwa	0	81	34282	710	710
Khargone	1238	125	61741	1407	1407
Mandsaur	2043	33	107590	944	944
Morena	515	122	18249	775	775
Neemuch	0	37	31040	799	799
Rajgarh	2278	116	5682	1702	1702
Shajapur	271	233	25700	947	947
Sheopur	1292	09	50000	610	589
Shivpuri	720	35	45324	1368	1368
Ujjain	889	59	63808	1095	1095
Bhopal	1231	09	65228	503	438
Burhanpur	37	22	20244	272	250
Indore	0	28	37595	633	633
Ratlam	0	40	42618	1053	1053
Sehore	14201	31	171204	1049	1049
Total	**36837**	**1439**	**1310966**	**22699**	**21883**

B. Status of Information through Whatsapp by KVKs

KVK	No. of Whatsapp Groups	No of Farmer Members	Activity details on Whatsapp group
Alirajpur	07	492	Advisory and agricultural information sent on groups
Ashoknagar	04	803	Agriculture, weather, machine, variety, plant protection, horticulture etc. information posts
Barwani	07	249	Weather updates, improved variety of crops, sowing date, seed rate, fertilizer doses, plant protection etc.
Lahar (Bhind)	02	60	Advisories, trainings, webinars and other information
Datia	05	250	Solution of farmers problems
Dewas	01	100	Problem Solution Interaction
Dhar	11	783	General Chat, Technology Videos, Important information, Notification, Online Training Links, Training date and other
Manawar (Dhar II)	01	65	Crop Information
Guna	08	1956	Information for awareness on Agri technologies Multimedia Video, Images & Tex advice Nutrition, Value Addition, Questionnaire

Jhabua	03	241	65
Khandwa	05	668	Discussion about problems facing by famers and their solutions with improved practices
Khargone	08	726	-
Mandsaur	03	412	-
Morena	02	285	02
Neemuch	06	506	-
Rajgarh	03	500	Advisory on disease and insect - pest management
Sheopur	05	485	Information regarding improved agriculture technology
Shivpuri	05	1230	Advisory message etc.
Ujjain	05	353	-
Bhopal	17	1027	1709 messages on various advisories
Burhanpur	06	349	Advisory & Awareness
Indore	13	818	Timely advisory on agriculture and allied areas
Ratlam	08	995	Activity related to farmers query and share agriculture news, magazines and awareness activities.
Sehore	06	417	-

C. Information throughSocial Media by KVKs

KVK	Face book			Twitter	
	Scientists	Farmers connected	No of Post	No of Tweets	Followers
Agar Malwa	-	-	-	-	-
Alirajpur	01	-	14	11	09
Ashoknagar	03	1021	50	30	Mass
Barwani	35	148	21	8	56
Lahar (Bhind)	-	-	-	13	34
Datia	42	200	12	10	-
Dewas	-	-	-	-	-
Dhar	04	3350	24	23	524
Manawar (Dhar II)	-	-	53	53	8
Aron (Guna)	86	128	11	02	12
Gwalior	-	-	-	-	-
Jhabua	-	-	-	-	-
Khandwa	01	112	11	-	-
Khargone	49	1236	135	26	256
Mandsaur	56	3176	31	0	0
Morena	15	5000	78	-	-

Neemuch	07	156	18	12	5
Rajgarh	20	100	-	-	-
Shajapur	-	-	-	-	-
Sheopur	20	50	21	03	09
Shivpuri	04	1500	85	-	-
Ujjain	46	2801	38	51	38
Bhopal	-	-	-	-	-
Burhanpur	34	3850	350	15	119
Indore	06	5000	42	20	23
Ratlam	05	4995	47	17	98
Sehore	05	58	-	-	-
Total	**-**		**1041**	**294**	**1191**

D. Mobile Apps developed by KVKs

S. No.	Name of KVK	Title of Mobile App	Language of App.	Number of Downloads
1.	Barwani	Kvk Barwani	Hindi	15
2.	Jhabua	Jhabua Khetibadi	Hindi/ English	200+
3.	Ujjain	KVK Ujjain	Android Operating System, Language Java	-

E. Status of KVK Website during January to December - 2020

Name of KVK	Date of start of website	Address of Website	No. of updates During 2020	No. of visitors during 2020
Alirajpur	2019	www.kvkalirajpur.org	07	4052
Barwani	2016	www.kvkbarwani.org	38	12000
Lahar (Bhind)	2013	www.kvklahar.com	26	1210
Datia	2011	www.kvkdatia.com	07	10414
Dhar	2011	www.kvkdhar.com	52	> 8000
Gwalior	2012	www.kvkgwalior.com	18	5596
Jhabua	2018	www.kvkjhabua.org	42	17308
Khandwa	2019	kvkkhandwa.org.in	Nil	-
Mandsaur	2015	https://kvk.icar.gov.in/	51	-
Morena	2017	www.kvkmorena.com	06	656
Neemuch	2011	www.kvkneemachzpdvii.org	46	86
Rajgarh	2013	kvkrajgarhzpdvii.org	12	300
Shajapur	2014	kvkshajapur.rvskvv.net	15	295
Sheopur	2016	https://kvk.icar.gov.in/	41	-
Shivpuri	2014	www.kvkshivpuri.org	04	590000

Ujjain	2011	https://kvkujjain.org	48	6002
Indore	2006	www.kvkindore.co.in	14	2382
Ratlam	2011	www.kvkratlam.org.in	18	221
Sehore	2015	kvksehore.nic.in	05	27848

1.9 Awards & Recognitions

Major awards, recognitions and appreciations received by the KVK scientists, associated farmers and KVK as an institution are given in the table below;

Awards and Recognition -2020

KVK Name	Name of award /awardees	Type of award (Ind./Group/Inst./Farmer)	Award category (local/ Regional / National)	Awarding Organizations	Amount received (Rs.)
Barwani	Haldhar Organic Krishak Purushar – 2019 MrsSarikaPatidar of District Barwani	Individual (Farmers)	National	ICAR , New Delhi	-
Datia	PanditDeendayal Upadhyay Krishi Vigyan Protsahan Puruskar (National)	Institutional	National	ICAR , New Delhi	-
	Dhanuka Innovative Agriculture Award for Water Harvesting	Institutional		DhanukaAgritech Pvt. Ltd.	-
Dhar	Krishak Fellow Award - 2020	Individual (Farmer)	State Level	Rajmata Vijyaraje Scindia Krishi Vishwavidhyalya, Gwalior	10000
Jhabua	Breed Conservation Award 2020 for Kadaknath Chicken	Institutional	National	National Bureau of Animal Genetic Resources (ICAR), Karnal (Haryana)	10,000
	National Poultry Extension Award	Institutional	National	Poulrty Association of India	-
	Dhanuka Ag. Innovative Award	Institutional	National	DhanukaAgritech Pvt. Ltd	
Khargone	Devarth Awards "Convergent Thinker" ShriAvinashDangi	Individual (Farmer)	Regional	Advanced Academy	NIL
	Farmers Fellow Award/ ShriAvinashDangi	Individual (Farmer)	Regional	RVSKVV, Gwalior	10000
	Organic India Haladhar/ ShriAvinashDangi	Individual (Farmer)	Regional	Krishi Jagaran	NIL

	State Level Annual Biodiversity Award 2020/ ShriAvinashDangi	Individual (Farmer)	Regional	MP State Biodiversity Board, Bhopal	300000
Morena	Best KVK Award-2020	Institutional	National	Outlook Agriculture Conclave and Swaraj Awards at NASC Complex, ICAR, New Delhi	
Ujjain	PanditDeenDayal Upadhyay Krishi PurotsahanPuraskar(Zonal)	Institutional	Zonal	ICAR, New Delhi	7.5 Lakh
Bhopal	ICAR Innovative Farmer Award 2020, Sh. Shyam Singh Kushawaha, Bhopal	IARI Kisan MelaPusa,New Delhi	National	IARI, Pusa, New Delhi (Pusa Krishi Vigyan Mela)	

1.10 Status of Revolving Funds - 2020

KVK	Account No.	Opening balance on 01 .01.2020 (Rs.)	Closing balance 31.12.2020 (Rs.)
AgarMalwa	37127235119	300000	300000
Alirajpur	29940210000458	300000	325000
Ashoknagar	30685855476	576089	851293
Barwani	30704699890	548300	811640
Datia	36470787786	818131	1377786
Dewas	19110110016503	4443358	1523625
Dhar	30657822680	1103045	889910
Manawar (Dhar II)	38095420207	1,00,000	1,14,000
Guna	30639334219	83490.00	230669.00
Gwalior	21160210000250	4019243.00	5043028.00
Jhabua	30702878779	4874850.25	5091239.25
Mandsaur	03770210000052	438813	495276
Morena	00430210000045	29,34,375	34,74,943
Rajgarh	32895980627	200000	912585
Shajapur	30699079595	750980	949646
Sheopur	39072325018	803282.00	932824.00
Shivpuri	21770210000014	570597	719661.56
Ujjain	1450110065738	1103454	1428300
Burhanpur	953220110000408	50428	16178
Indore	882110110002616	2763255	3263799
Ratlam	2348735072	572043	689515

1.11: Publications and Media Development by KVKs

During 2020, various research and farmer friendly publications were published and distributed among the clients for issuing timely advisory on technological developments in agriculture and allied areas.

KVK	Abstr	Resea	Leafle	Popu	Boo	Book	Techn	Train	Techn	Year	Bo	Electr	Tot

	act	rch Paper	ts/ Folder/ Pamphlet	lar article	klet	Chapter	ical Bulletin	ing Manual	ical Report	Planner	ok	onic Media Show (CD/VCD)	al
Agar Malwa	0	04	0	0	0	0	0	0	0	0	0	0	**04**
Alirajpur	0	0	04	0	02	0	0	0	06	01	0	0	**13**
Ashoknagar	0	02	04	0	02	02	0	01	04	01	0	06	**22**
Barwani	12	11	14	0	0	05	20	01	26	01	01	02	**93**
Lahar (Bhind)	0	0	11	0	0	0	0	0	0	0	0	0	**11**
Datia	05	05	06	0	0	0	0	0	05	01	0	0	**22**
Dewas	0	05	0	10	0	0	01	0	02	0	0	0	**18**
Dhar	04	0	03	04	01	03	03	04	02	01	01	0	**26**
Manawar (Dhar II)	0	01	02	0	0	0	0	0	0	01	0	04	**08**
Aron (Guna)	0	0	05	03	0	01	0	02	08	01	0	0	**20**
Gwalior	06	03	02	15	01	02	02	01	54	01	01	0	**88**
Jhabua	0	0	04	01	01	01	0	0	07	01	0	0	**15**
Khandwa	03	01	04	0	0	05	0	02	0	0	0	0	**15**
Khargone	0	0	04	02	02	0	0	0	22	01	0	0	**31**
Mandsaur	02	05	10	02	0	0	01	0	05	01	0	0	**26**
Morena	14	05	03	10	01	05	0	04	02	01	01	0	**46**
Neemuch	0	03	05	05	03	04	0	0	10	01	01	0	**32**
Rajgarh	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Shajapur	07	05	04	0	03	0	0	01	0	01	0	0	**21**
Sheopur	03	04	02	0	0	0	0	02	05	01	0	0	**17**
Shivpuri	0	02	02	02	0	0	02	04	06	01	0	01	**20**
Ujjain	05	05	02	07	0	03	0	0	02	01	0	03	**28**
Bhopal	0	01	0	01	0	0	0	0	0	0	0	0	**02**
Burhanpur	04	02	02	0	0	0	0	02	02	0	0	0	**12**
Indore	02	01	0	04	0	01	0	0	0	01	0	0	**09**
Ratlam	0	02	25	17	03	0	0	0	10	01	01	0	**59**
Sehore	0	03	04	0	0	0	0	0	02	06	0	0	**15**
Total	**67**	**70**	**122**	**83**	**19**	**32**	**29**	**24**	**180**	**25**	**6**	**16**	**673**

1.12: Outreach of KVK -2020

The KVKs are functioning at district level as a model institution for transfer of agricultural technologies among farmers and district extension machinery. The KVK work on principles of scientific agriculture and follow cluster based approach for agricultural development in the district. It works through adopted villages and develops them as model for district extension system. The table below gives a detailed account of coverage and outreach of KVK in the district.

Name of KVK	Total number of Block/villages in district		Number of Blocks		Number of Villages	
	Block	Village	Intensive	Extensive	Intensive	Extensive
Agar Malwa	03	01	01	02	-	-
Alirajpur	06	543	02	06	03	27
Ashoknagar	04	921	03	04	15	450
Barwani	07	693	05	07	35	208
Lahar (Bhind)	06	877	04	02	27	798
Datia	03	610	02	01	60	150
Dewas	06	1067	05	06	28	962
Dhar	13	1579	05	08	71	1532
Manawar (Dhar II)	07	340	02	05	15	340
Guna	05	1260	03	02	86	1174
Gwalior	04	717	04	04	67	650
Jhabua	06	12	06	0	12	813
Khandwa	07	710	03	04	4	710
Khargone	09	1407	03	06	26	1293
Mandsaur	05	944	02	02	352	607
Morena	07	775	05	07	16	460
Neemuch	03	799	03	0	3	799
Rajgarh	06	1600	04	02	675	993
Shajapur	04	587	04	04	32	587
Sheopur	03	610	02	01	08	589
Shivpuri	08	1368	06	02	250	985
Ujjain	06	1095	06	06	38	1095
Bhopal	02	-	02	02	12	215
Burhanpur	02	272	02	02	20	250
Indore	04	633	04	04	24	633
Ratlam	06	1086	06	06	12	213
Sehore	05	1049	04	05	25	925
Total	**145**	**21555**	**98**	**100**	**1908**	**16869**

1.13: Initiatives on Doubling Farmers Income (DFI)

As per the guidelines of Ministry of Agriculture, Government of India, KVKs under RVSKVV, Gwalior have selected villages for intensive implementation of income generating/enhancing agricultural activities for Doubling Farmers' Income by 2022. The details are as follows;

A. Information about DFI Village

Name of KVK	Block	Name of DFI Village	Total geographical area (ha)	House hold	Population
Agar Malwa	-	-	-	-	-
Alirajpur	Udaigarh	Khushalbardi	213	131	740
Ashoknagar	Ashoknagar	Khariyamahu	-	250	1200
Barwani	Barwani	Lonsara	284.77	261	2088
Lahar (Bhind)	Lahar	Baijpura	309	224	1178
Datia	Datia	Kakraua	-	-	-
Dewas	Soncutch	Narana	197	140	922
Dhar	Nalcha	Avalia	89	22	155
Manawar (Dhar II)	-	-	-	-	-
Guna	Raghogarh	Arashkheda	135	52	268
Gwalior	Bhitarwar	Banwar	1766	1246	5000
Jhabua	-	-	-	-	-
Khandwa	Khalwa, Punasa and ChegaonMakhan	Jhirniya, Dait and Sulyakhedi	-	303	1703
Khargone	Gogawa	Baijapur	-	-	-
Mandsaur	Malhargarh	Chillodpipliya	426.92	244	1206
Morena	Joura	Bisangpura	218	96	1207
Neemuch	Neemuch	Malkheda	1037	401	1977
Rajgarh	Zirapur	-	-	-	-
Shajapur	Shajapur	Gopipur	460	392	770
Sheopur	Karhal	Parond	80.00	65	512
Shivpuri	Shivpuri	Rator	-	-	-
Ujjain	Ghattiya	Salakhedi	200	106	700
Bhopal	Berasia and Panda	Sagonia	-	-	-
Burhanpur	Burhanpur Burhanpur Khaknar Khaknar	Dhoolkot Umarda Karkheda Nimandhad	-	1780	9824
Indore	Indore	Akya	245.3	73	412
	Depalpur	Machal	683.8	715	3790
Ratlam	Ratlam	Jaamthun	720.93	339	763
	Piploda	Nawabganj	295.74	150	691
Sehore	Sehore	Bijlon	1066.05	424	2380

B. Activities in DFI Village during January to December -2020

KVK	OFT			FLD			Training		Ext. Activities	
	No	Area (ha)	Benf.	No	Area (ha)	Benf.	No.	Benf.	No.	Benef.
Agar Malwa	-	-	-	-	-	-	-	-	-	-
Alirajpir	01	2.0	05	04	16.0	40	05	71	02	62
Ashoknagar	03	3.0	130	03	4.0	60	01	21	02	43
Barwani	03	4.0	35	02	04	10	10	262	35	628
Lahar (Bhind)	01	0.4	2	01	-	05	01	20	-	-
Datia	07	13.65	67	04	8.2 ha and 04 animal	14	11	135	03	173
Dewas	10	4.0	10	05	2.0	05	01	21	02	51
Dhar	04	12.0	40	02	6.0	25	04	172	04	58
Manawar (Dhar II)	-	-	-	-	-	-	-	-	-	-
Aron (Guna)	04	37.0	55	03	9.5 &05 Unit	73	07	215	10	290
Gwalior	05	7.0	70	02	12	50	08	204	11	420
Jhabua	-	-	-	-	-	-	-	-	-	-
Khandwa	07	14.0	61	08	16.0	70	11	322	-	-
Khargone	03	8.4	21	06	24	60	09	243	06	150
Mandsaur	01	1.0	5	02	6.4	21	03	62	05	122
Morena	01	LPM	68	-	-	-	01	22	02	92
Neemuch	02	2.0	14	02	10.0	24	10	250	21	183
Rajgarh	10	10.0	50	08	8.0	80	12	300	10	325
Shajapur	02	8.0	20	01	4.0	10	06	117	03	97
Sheopur	09	6.4	34	10	53.0	126	09	205	-	-
Shivpuri	-	-	-	09	3.2	13	03	55	01	55
Ujjain	1	0.4	1	5	10.8	27	03	73	01	38
Bhopal	-	-	-	-	-	-	-	-	-	-
Burhanpur	04	8.8	31	02	2.2	17	02	51	04	151
Indore	02	12.5	20	06	16.5 33 Nos.	78	05	83	05	142
Ratlam	04	2.6	36	05	33.2	92	11	234	03	75
Sehore	03	1.5	25	08	14.2	60	10	177	66	636

1.14: Flagship Programmes of ICAR/Government of India implemented by KVKs/DES

1. National Innovations on Climate Resilient Agriculture (NICRA)

National Innovations on Climate Resilient Agriculture (NICRA) is a network project of the Indian Council of Agricultural Research (ICAR) launched in February, 2011. The project aims to enhance resilience of Indian agriculture to climate change and climate vulnerability through strategic research and technology demonstration. The research on adaptation and mitigation covers crops, livestock,

fisheries and natural resource management. The project consists of four components viz. Strategic Research, Technology Demonstration, Capacity Building and Sponsored/Competitive Grants.The project was formally launched by the Hon'ble Union Minister for Agriculture & Food Processing Industries ShriSharadPawarji on 2nd February 2011.

NICRA is being implemented by five KVKs under RVSKVV, Gwalior since 2011. Three KVKs namely Datia, Guna and Morena is implementing the project since its inception in 2011 whereas two more KVKs i.e. Jhabua and Ratlam were included in NICRA during 2015-16. KVK Datia had been awarded as Best NICRA KVK twice during 2014 and 2019 for outstanding work in water conservation under technology demonstration component.

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Stored rain water in renovated check dam</td><td>Stored rain water in farm pond (scientist of ATARI Zone IX Jabalpur visited the farm pond)</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Height of Constructed Poly Bag Check Dam (BoriBandhan)</td><td>Rain water Stored in BoriBandhan</td></tr>
</table>

2. Cluster Front Line Demonstrations (CFLD) on Oilseed and Pulses

A. Pulses

Indian government imports large quantity of pulses to fulfil domestic requirement of pulses. In this regard, to sustain this production and consumption system, the Department of Agriculture, Cooperation and Farmers Welfare had sanctioned the project "Cluster Frontline Demonstrations on pulses from 2015-16" to ICAR-ATARI, Jabalpur through National Food Security Mission. The basic strategy of the Mission is to promote and extend improved technologies, i.e., seed, micro-nutrients, soil amendments, integrated pest management, farm machinery and implements, irrigation devices along with capacity building of farmers. This project was implemented by all KVKs under RVSKVV, Gwalior with main objective to boost the production and productivity of pulses through CFLDs with latest and specific technologies.

CFLD on Black gram during Kharif 2018

Cluster demonstration of Field Pea during 2017-18

B. Oilseed

Oil seed crops have ecological conditions in India, resulted in the production of 7.87 m tonnes of seed mustard in 2013-2014 and our productivity is 10.9kg/ha. It is now widely accepted fact that training to farmers and farm women increases the technical knowledge regarding package of practices. KVKs are playing a vital role across the rural economy in distinguish field as animal husbandry, horticulture, plant protection and food processing. India is an important rape seed mustard growing country in the world, occupying largest area and has second position in production after China.

CFLD Monitoring Visit

3. Seed Hub Project

The Government of India has launched Seed Hub Project during 2016-17 to promote indigenous production of pulses in India by creating 150 Seed Hubs in KVKs across the country. ICAR-IIPR, Kanpur has been given responsibility of nodal agency at National level. Four KVKs namely Datia, Dewas, Morena and Ujjain has been selected for implementation of Seed Hub project among KVKs under RVSKVV, Gwalior. Major crop like Black gram, Green gram, Pigeon pea, chick pea and fields pea are being taken up for seed production under the seed hub project.

Crops under Seed Hub Project Datia

4. Attracting and Retaining Youth in Agriculture (ARYA)

In order to create interest and confidence among rural youth in agriculture, there is needed to make agriculture more profitable. Retaining youth in agriculture and making agriculture more profitable are thus, big challenges. There is a continuous increase in migration of rural youth to urban areas. On the other hand, small holdings are on the rise which posses challenge to food security for increasing population. Thus, it was felt to bring a comprehensive model for the development of rural youth in general and agricultural youth in particular. Thus, realising the importance of rural youth in agricultural development especially from the point of view of food security of the country, ICAR has initiated a programme on "Attracting and Retaining of Youth in Agriculture (ARYA)" with following objectives;

1. To attract and empower the Youth in Rural Areas to take up various Agriculture, allied and service sector enterprises for sustainable income and gainful employment in selected districts.
2. To enable the Farm Youth to establish network groups to take up resource and capital intensive activities like processing, value addition and marketing.
3. To demonstrate functional linkage with different institutions and stakeholders for convergence of opportunities available under various schemes/program for sustainable development of youth.

KVK, Gwalior was selected for implementing ARYA project during 2016-1 in first phase and currently five KVKs under RVSKVV are implementing this project.

5. Farmers' FIRST Project

The Farmer FIRST as a concept of ICAR is developed as farmer in a centric role for research problem identification, prioritization and conduct of experiments and its management in farmers' conditions. The focus is on farmer's Farm, Innovations, Resources, Science and Technology (FIRST). Two terms 'enriching knowledge' and 'integrating technology' qualify the meaning of Farmer FIRST in Indian context. Enriching knowledge signifies the need for the research system as well as farmers to learn from each other in context to existing farm environment, perception of each other and interactions with the sub-systems established around. Technology integration is looked from the perspective that the scientific outputs coming out from the research institutions, many times do not fit as such in the farmers' conditions and thus, certain alterations and adaptations are required at field level for their acceptance, adoption and success. 'Farmer FIRST' programme aims at enhancing farmer-scientist interface for technology development and application. It will be achieved with focus on innovations, technology, feedback, multiple stakeholder's participation, multiple realities, multi method approaches& vulnerability and livelihood interventions.

The Farmers' FIRST Project is being implemented in RVSKVV since2016-17 in ZARS/KVK, Morena.

6. District Agro-meteorological Units (DAMU)

India Meteorological Department, Ministry of Earth Sciences, Government of India, New Delhi has established District Agro -meteorological Units (DAMU) at 07 KVKs under RVSKVV jurisdiction and process of establishing 04 more such units is in advanced stage at IMD level. Major objective of DAMU is to provide timely weather and agricultural updates to the farmers and other stakeholders at micro level.

7. Diploma in Agricultural Extension Services for Input Dealers (DAESI)

Agri-Input Dealers in the country are a prime source of farm information to the farming community, besides the supply of inputs and credit. However, majority of these dealers do not have formal agricultural education. In order to build their technical competency in agriculture and to facilitate them to serve the farmers better and to act as para – extension professionals, National Institute of Agricultural Extension Management (MANAGE) has launched a self-financed "One-year Diploma in Agricultural Extension Services for Input Dealers (DAESI) Program" during the year 2003 for the input dealers. Due to positive impact of the program, Ministry of Agriculture & Farmers' Welfare, Government of India has decided to implement this program for Input dealers in all the States of the country. The program is being implemented by MANAGE through State Agricultural Management and Extension

Training Institutes (SAMETIs). The Department of Agriculture and Cooperation & Farmers' Welfare (DAC & FW), GoI, will subsidize the course fee 50% per Input dealer. The technical information is delivered through Contact Classes by Agricultural Experts & Practitioners at district level on Sundays or Market holidays for 48 days including field visits spread over a year.

DAESI programme is also being implemented by more than 10 RVSKVV-KVKs through Department of Agricultural Development &Farmers' Welfare, Govt. of M.P.

8. MeraGaonMera Gaurav (MGMG)

The programme is being implemented by the University through in five constituent colleges i.e. College of Agriculture, Gwalior, Indore, Sehore, Khandwa and College of Horticulture, Mandsaur and three ZARS viz; Jhabua, Khargore and Morena. The above V.V. units are organizing regular extension activities under MGMG in their identified villages.

9. Scheduled Caste Sub Plan (SCSP)

The SCSP has been started by the Government of India to benefit the farmers of scheduled caste (SC) communities of the country. This programme is being implemented by two RVSKVV- KVKs namely Datia and Ujjain. Under SCSP programme, various extension activities like training, awareness camps and distribution of input and machinery are being organised for farmers belong to scheduled caste.

10. Kisan OPD Initiated:

All theKVKs under RVSKVV have started regular Kisan OPD for diagnosis of day to day problems brought by the farmers to the KVK scientists.

11. Other Programmes:

The KVKs are developing infrastructure and organizing various activities and under Government programmes like RKVY, PKVY, GKRY, Swachh Bharat Abhiyan and TSP etc. In addition to this, special days like International Soil Health Day,World Women Day, World Environment Day, Milk Days, Technology and Nutrition Week etc. are being celebrated by the KVKs on regular basis.

2. Major Activities of Directorate of Extension Services

2.1: Establishment of Centre for Agribusiness Incubation & Entrepreneurship (CAIE)

Centre for Agribusiness Incubation & Entrepreneurship has been established under Directorate of Extension Services with financial support of NABARD for promoting entrepreneurial ventures in agriculture sector. The centre will identify, train and groom new agri-preneurs through incubation support, when start functioning.

2.2: Establishment of Agriculture Technology Information Centre (ATIC)

The Agricultural Technology Information Centre (ATIC) is a 'single window' for dissemination of information and support system for various innovative and farm worthy technologies evolved at the University and Agricultural Research System of India in the pursuit of research and development. The construction work of ATIC building is completed near the main campus and it has to be furnished and inaugurated soon.

Newly Constructed ATIC Building

2.3: Raj-Vijay Kitchen Garden Kit

Directorate of Extension of Services Rajmata Vijayaraje Sciendia Krishi VishwaVidhyalaya Gwalior (MP) has launched the new initiative for nutritional security of farming community namely "Raj Vijay Kitchen Garden Kit". The Kitchen Garden kit is beneficial for ensuring nutritional security by providing fresh vegetables at household level. It is a pioneer initiative of VishwaVidhyalaya with a big goal to fight with malnutrition at household level. The initiative is started during the year 2020 with preparation of 1000 Kitchen Garden Kit and in current year the Directorate is in process of making 25000 kits this year. The produced kit will be provided to the farming community through ATIC and various platforms.

2.4: Community Radio Station (CRS)

The Directorate of Extension Services has submitted an application to Ministry of Information and Broadcasting, Government of India for establishment of Community Radio Station at ATIC building which is under process at frequency allotment stage in the ministry.

2.5: RVSKVV- Krishak Fellow Samman - 2020

The Directorate of Extension Services has initiated an annual award for the farmers of Madhya Pradesh. The award is conferred to best performing three innovative farmers selected through a set procedure every year during Foundation Day of the University.

2.6: Weekly online programme 'Raj Vijay Krishi Sandesh' started

The Directorate has started a weekly online **'Raj Vijay Krishi Sandesh'** programme for farmers and extension workers for updating them and providing solution on various issues and problems of agricultural and allied areas. The programme is organised for one hour during evening time in which farmers, extension workers, scientists used to participate and interact with the experts on a specific subject chosen for the discussion.

2.7: Memorandum of Understanding (MoUs) signed

The Directorate has signed06 MoUs during the year with several Government and Non-Government Organizations to facilitate extension activities at various districts of its jurisdiction.

S. No.	Name of Institution	Major Objective	Year
1.	*Petroleum Conservation Research Association (PCRA), Mumbai*	To createawareness activities among farmersand other stakeholders of agriculture sector about petroleum and fuel conservation.	2020-21
2.	ICAR-IISR, Indore	Augmenting soybean production in tribal districts of Madhya Pradesh for sustainable livelihood security	2020-21
3.	*India Meteorological Department,* Ministry of Earth Sciences. Government of India, New Delhi	To provide timely weather and agricultural updates through DAMU and GKMS	Contd...
4.	Transform Rural India Foundation (TRIF) an Initiative of TATA Trust	To establish a Technology Demonstration Centre at KVKs of RVSKVV, Gwalior	2019
5.	East-West India Pvt Ltd,	Establishment of Demonstration	2019

	Aurangabad	units of High tech vegetable cultivation at RVSKVV-KVKs.	
6.	ICAR-IGFRI, Jhansi	Crop, Fodder and Livestock based technological modules for upliftment of tribal community in Barwani district of M.P.	2020-21

2.8: Scientific Advisory Committees (SAC) Meeting of KVKs

The Scientific Advisory Committee meetings were conducted to give necessary guidance and support to carry out the mandated activities of KVK in a more planned and scientific manner. The committee monitors progress and facilitate in-depth exchange of views in specific fields. The committee evolves the scientific and technical vision documents for the KVK, reviews periodically and takes further course of action as deemed fit for furthering scientific and technological activities of the KVK. Activities of KVKs are monitored through thesemeeting of Scientific Advisory Committees (SAC). Director Extension Services, Joint Director Extension, and scientists from the Directorate of Extension Services participated in these meetings to reviews previous activities and finalize the action plans for coming season.A total of 52 SAC meetings (Kharif and Rabi) were conducted for all 27 KVKs during 2020. Details of SAC meetings organised during the year are as follows:

KVK Name	Kharif 2020		Rabi 2020-21	
	Date of Meeting	Participants	Date of Meeting	Participants
Agar Malwa	July 2020	30	September 2020	30
Alirajpur	23.7.2020	38	21.6.2020	32
Ashoknagar	14.07.2020	17	16.09.2020	30
Barwani	14.07.2020	18	25.09.2020	35
Lahar (Bhind)	15.07.2020	21	26.09.2020	22
Datia	15.07.2020	14	28.11.2020	39
Dewas	16.07.2020	39	29.07.2020	34
Dhar	16.07.2020	21	21.09.2020	23
Manawar (Dhar II)	17.07.2020	30	22.09.2020	20
Aron (Guna)	17.07.2020	08	23.09.2020	12
Gwalior	17/06/2020	25	26/09/2020	29
Jhabua	24.07.2020	24	27.09.2020	21
Khandwa	21.07.2020	15	24.09.2020	17
Khargone	20.07.2020	31	24.09.2020	39
Mandsaur	21.07.2020	18	25.09.2020	27
Morena	21.07.2020	18	25.09.2020	22
Neemuch	22.07.2020	25	23.09.20	25
Rajgarh	22.07.2020	26	26.09.20	32
Shajapur	23.07.2020	35	29.09.2020	38
Sheopur	29-09-2020	21	20-11-2020	25

Shivpuri	24.7.2020	23	30.9.2020	29
Ujjain	24-07-2020	29	30-09-2020	34
Bhopal	**No SAC Meeting was organised during the Year**			
Burhanpur	25-07-2020	32	01-10-2020	25
Indore	27.07.2020	21	03.10.2020	18
Ratlam	27.07.2020	27	03.10.2020	29
Sehore	27.07. 2020	27	03.10. 2020	26

2.9: Training /Workshops/ Meetings organised by the Directorate of Extension Services

Following capacity building/ HRD programmes and workshops/ review workshops were conducted for KVK scientists by the Directorate of Extension Services during the year 2020:

Programme	Title of programme	Date	No. of Participants	Level of Participants
A. Capacity Building Programme				
Capacity Building Programme	On Farm production of organic inputs	February 4-5, 2020	26	Scientists of KVKs
	Preparation and dissemination of agromet advisories at Block level under DAMU	February 23-27, 2020	16	Scientists of KVKs
Collaborative Training Programme: DES, RVSKVV, Gwalior with SIAET, Bhopal	Refresher Training cum Workshop for Production Technology of Kharif Crop	August 05-06, 2020	Online Mode Approx. 100	District and Block level Extension Worker
	Refresher Training cum Workshop for Production Technology of Rabi Crop	October 20-21, 2020	Online Mode Approx. 100	District and Block level Extension Worker
DES, RVSKVV, Gwalior (M.P.) and National Agriculture Development Cooperative Ltd., Baramulla (U.T. of J& K) jointly organised online 21 Days Training Programme organised	Recent Technologies of Agribusiness Management and Agri Entrepreneurship during	October 08-28, 2020	100	Scientists, Agri-professional and other stakeholders
B. National Webinar Organised				
1.	National Webinar on	June 19,	>1000	Scientists,

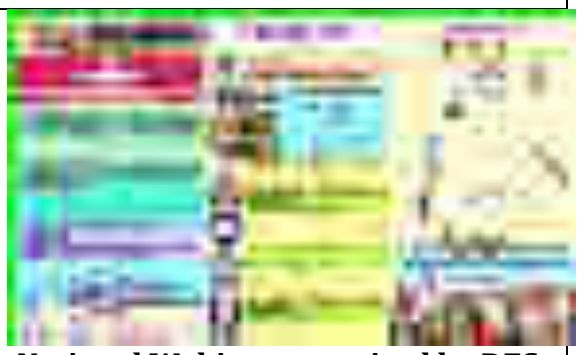
	Rehabilitation of Non-agriculture Migrant Labourers due to COVID -19 Pandemic: Challenges and Opportunities	2020		Students, Policy Makers, Ag. Administrators etc.
2.	National Webinar on Climate Resilience Agriculture Opportunities & Potential	July 27, 2020	429	Scientists and Students
C. Western Regional Farmers Fair	KRISHI VIJAY-2020	January 28-30, 2020	>3600	Participants from all over the Western Zone states
D. Exhibition and Sangosthi	Raj Vijay Fulwari – 2020 (An Exhibition of Horticulture and processed products)	January 28-30, 2020	>200	KVKs, Farmers, Nursery, institutions and Industry
E. Workshop/ Meeting	Review Work Shop of KVKs	May 18-20, 2020	30	Senior Scientist & Head of KVKs

Glimpses of Activities by KVKs and DES, RVSKVV, Gwalior

Online Capacity Building Programme for Scientists

Online SAC Meeting

Training Pgogramme



National Webinar organised by DES

Inauguration of Krishi Vijay -2020

Training of Organic Farming-Khandwa Model

National Workshop of Agro-meteoroogy

Release of Kitchen Garden Kit during Krishi Vijay - 2020

6. LIBRARY AND DOCUMENTATION SERVICES:

Library system of different constituent Colleges of Rajmata Vijayaraje Scindia Krishi Vishwa Vidyalaya, Gwalior continued to play the pivotal role in dissemination of information across the University.

Entire academic community continued to harness the benefits of this useful information system. Textbooks, Reference books, Competitive examination books, digital library e-books, scientific periodical, thesis, report, encyclopedias, CDs relevant to teaching and research activities etc. have been stocked in the library of constituent Colleges of the University.

Books and Journals available:

S.No.	Particulars	No. of books
1.	Total No. of books available in different College Library of Vishwa Vidyalaya.	147104
2.	New books purchased during 2020-21	557
3.	*e*-Books	148

Central Library: The fund provided by ICAR has been utilized by the Central Library of the University. The much awaited and highly needed books on various subjects have been purchased. The basic infrastructural facility has been developed that has made the academic atmosphere of the libraries more conductive for the research scholars, students and teachers alike. The computerization of all the e-libraries of Vishwa Vidyalaya has made the functioning smoother now, therefore each and every user is assisted promptly.

The e-library is fully functional connecting the local user through World Wide Web to the global scenario of knowledge. The good quality book cases keep study material safe and intact, and the comfortable furniture is a kind of great relief to the voracious readers**.** In central library total Books are 10341, 9718 printed books, 438 e-books, 07 printed magazines, 1303 gifted books, 15 priented journal and 52 E-magazines were available in Central library of VishwaVidhyalaya.

7. INFRASTRUCTURE DEVELOPMENT:

(1) College of Agriculture, Gwalior:-

S.No.	Department	Infrastructure Development
1	Plant breeding & Genetics	1. Refrigerated Incubator with Shaker 2. Ultra pure water purification system 3. Bench Top lyophilizer 4. Fragment Analyzer 5. Flow Cytometer 6. Multimode reader 7. Horizontal Leminar air flow 8. Cold room for short term storage unit 9. Cryotome 10. Manual cup filter to pack soil in bag Tissue culture media 11. mixing, automtic filling and capping quipment

(2) College of Agriculture, Indore: - Nil

(3) RAK, College of Agriculture, Sehore:- Following structures were completed during 2020-21

- Construction of seed hub
- Vermi-compost shed

Vermicompost Shed

Seed hub building

(4) BM, College of Agriculture, Khandwa: -

The vision of the Institute is to "ensure good governance, flawless administration and sound human resource management to harness the full potential of the staff and the students so as to transform a process driven institution into a result oriented organization".

Vermicompost:

This unit is established at Cotton Research Centre, Khandwa and it consist of 12 beds for preparation of Vermicompost, which is used for organic Cotton and Turmeric production in the farm.Vermicomposting uses earthworms to turn organic wastes into very high quality compost, which give all essential micro and macro plant nutrients to plants. Worm casts contain five times more nitrogen, seven times more phosphorus, and 11 times more potassium than ordinary soil.

Vermi-compost unit at Cotton Research Centre

Madhav Goshala

B.M.College of Agriculture hascattle husbandry unit with 70 cattle's at cotton research centre and is known as "Madhav Gaushala". It is a large source of cow dung provider, which is supplied in making vermin-compost. Cow dung, urine can be used for making Jivamrut and organic pesticides.

The development works carried out at Gaushala.

- Construction of Cattle Shed.
- Construction of grass godown.
- Compound wall.
- Cattlesat Madhav Goshala

INITIATIVES TOWARDS ORGANIC FARMING:

Two Vermi-compost units each at College farm and KVK premises have been established. Both the units have six pits and production of vermi-compost has already started and is being used for enriching the soils of the college farm. Besides, under *Krishi Teerth* plan, recently, a vermi-compost unit has also been established in which the compost is being made in open bed instead of pits.

An area of one hectare has been earmarked for organic farming as per the directives of the VV. Since last three years organic crops like Cotton, Wheat, Arhar, Turmeric. Gram, Onion, Kinova, Maize, Watermelon, Moringa, Mango, Pomegranate and Custard apple have been cultivated without using any synthetic chemicals. Facilities for micro (drip) irrigation have also been established.

Sports and Gym facilities available

Physical exercise is important for maintaining physical fitness and can contribute positively to maintaining a healthy body. College also has a Gymnasium with latest machines like Cardio Equipment, strength equipment, Treadmill, Rehabilitation Upright Bike, Massager etc. Sports complex and Gym is presently used by students as well as by the staff for activity requiring physical effort, carried out to sustain or improve health and fitness. New Machines and other health equipments are purchased in order to strengthen Gymnasium.

Auditorium

Auditorium is not available at the College. However, a seminar hall has been established in the College. A newly built conference hall with a sitting capacity of 75, was inaugurated by Hon'ble Vice Chancellor RVSKVV, Dr S.K. Rao with the name "Ambedkar Hall".

Auditorium

Soil Science lab

Plant Pathology Lab

(5) KNK, College of Horticulture, Mandsaur

Facilities Developed at College Level

S.No.	Facility developed	Qty	Amount
1.	Solar water heaters at Boys & Girls Hostels	02	100,000/-
2.	Solar Lights	07	100,000/-
3.	Open Gym Facility	01	100,000/-
4.	Amusement park	01	96,000/-
5.	Print books purchased for library	82	100,000/-
6.	e-books purchased for library	30	400,000/-

Facilities Developed at Department Level
Name of Department:

S. No.	Name of the Department	Facilities Developed (Equipment purchased)	Qty	Cost
1.	Fruit Science	Fruit Penetrometer	01	42468/-
		Pruning chain saw	01	8050/-
2.	Vegetable Science.	Leaf area meter	01	75166/-
3.	Soil Science and Agricultural Chemistry	Flame photometer	01	80000/-
4.	Soil Science and Agricultural Chemistry	Analytical weighing balance	01	65000/-
5.	Floriculture & Landscape Architecture	Lawn Mower	01	35784/-
6.	Plantation, Spice, Medicinal And Aromatic Plants.	Colorimeter	01	99800/-

Glimpses




Open Gym and Amusement Park

Lawn Mower

Solar Water Heaters

8. GENERAL ADMINISTRATION:

8.1 **General Administration:** The Board of Management (BoM) of RVSKVV is the apex-body, empowered to make policy decisions with the Vice-Chancellor as its Chairperson who is also the Executive Head of the University. The composition of BoM is given below:

BOARD OF MANAGEMENT

S. No.	NAME AND ADDRESS OF MEMBERS
1	Principal Secretary Farmer Welfare and Agriculture Development MP Govt., Mantralaya, Vallabh Bhawan, Bhopal (M.P.)
2	Secretary Department of Finance MP Govt., Mantralaya, Vallabh Bhawan, Bhopal (M.P.)
3	Prof. S.K. Rao Vice-Chancellor RVSKVV, Gwalior (M.P.)
4	Dr. N.S. Rathore Deputy Directore General (Agril. Eduaction) ICAR, KAB-II, Pusa, New Delhi
5	Ex. Vice-Chancellor (RVSKVV/JNKVV) DH-33 A, DD Nagar, Morar, Gwalior (M.P.)
6	Shri Munna Lal Goyal MLA Murar, Gwalior (M.P.)
7	Dr. Sushil Kumar Piyashi Agril. Engineear (SWE) College of Agriculture Engineering Aadhartal, Jabalpur (M.P.)
8	Sh. Praveen Kumar Shinde F-108/29, Shivaji Nagar, Bhopal (M.P.)
9	Sh. Shivraj Sharma Bal Niketan Road Gandhi Colony, Morena (M.P.)
10	Sh. Ranjeet Singh Rana H-32, Purani Court Ghasmandi, Morar, Gwalior (M.P.)
11	Dr. Sunanda Singh Raghuwanshi E-7/59, SBI Colony, Arera Colony, Bhopal (M.P.)
12	Registrar RVSKVV, Gwalior (M.P.)

ACADEMIC COUNCIL

The Academic Council is vested with the responsibility of implementing and monitoring all the academic programmes. The council is headed by the Vice-Chancellor, as chairperson and consists of Dean Faculty, Director Instructions, Director Research and Director Extension, University Head of Departments and Professors as members. The composition details are given below:

S. No.	NAME AND ADDRESS OF MEMBERS	OFFICIALS
1	Prof. S.K. Rao Vice-Chancellor RVSKVV, Gwalior (M.P.)	**Chairman**
2	Dr. Rajpal Singh (Rtd.) Professor & Head Bhopal (M.P.)	Member
3	Dr. C.V. Ratnam Hyderabad (Telangana)	
4	Dr. D.H. Ranade Dean, Faculty of Agriculture RVSKVV, Gwalior (M.P.)	Member
5	Dr. M.P. Jain Director, Research Services RVSKVV, Gwalior (M.P.)	Member
6	Dr. S.N. Upadhyay Director, Extension Services RVSKVV, Gwalior (M.P.)	Member
7	Dr. A.K. Singh Director Instruction & Student Welfare RVSKVV, Gwalior (M.P.)	Member
8	Dr. Riti Singh Head of Department (Pathology) College of Agriculture, Gwalior (M.P.)	
9	Shri D.L. Kori Registrar RVSKVV, Gwalior (M.P.)	**Member Secretary**

ADMINISTRATIVE COUNCIL

S. No.	NAME AND ADDRESS OF MEMBERS	OFFICIALS
1	Prof. S.K. Rao Vice-Chancellor RVSKVV, Gwalior (M.P.)	**Chairman**
2	Dr. D.H. Ranade Dean, Faculty of Agriculture RVSKVV, Gwalior (M.P.)	Member
3	Dr. M.P. Jain Director, Research Services RVSKVV, Gwalior (M.P.)	Member
4	Dr. S.N. Upadhyay Director, Extension Services RVSKVV, Gwalior (M.P.)	Member
5	Dr. A.K. Singh Director Instruction & Student Welfare RVSKVV, Gwalior (M.P.)	Member
6	Dean, College of Agriculture, Race Course Road, Gwalior (M.P.)	Member
7	Dean, College of Agriculture, Indore (M.P.)	Member
8	Comptroller RVSKVV, Gwalior (M.P.)	Member
9	Dr. H.S. Bhadauria Executive Engineer RVSKVV, Gwalior (M.P.)	Member
10	Dr. O.P. Daipuria Head of Department (Extension) College of Agriculture, Gwalior (M.P.)	Member
11	Dr. V.S. Kandalkar Head of Department (Pl. Breeding & Genetics) College of Agriculture, Gwalior (M.P.)	Member
12	Shri D.L. Kori Registrar RVSKVV, Gwalior (M.P.)	**Member Secretary**

9. IMPORTANT EVENTS/INAUGURATIONS: There was not any information/activity carried out of this year due to COVID-19 pandemic situation.

10. HUMAN RESOURCE DEVELOPMENT:

Participation of Scientist in National/International Seminars/Symposia/ Conferences/ Short term Courses /Trainings/Workshops/Summer and Winter Schools etc.

S. No.	Title of training	No. of participants nominated
1.	Summer/Winter Schools	6
2.	National/International/Seminars/Symposia/Conference	5
3.	Short term courses	2
4.	Workshop	2

11. AWARDS AND RECOGNITIONS BY COLLEGES:

1. College of Agriculture, Gwalior-

S.No.	Name of person	Name of the Award	Awarding Organization
1	Dr. Sushma Tiwari	Best oral presentation award	NESA New Delhi and IASRI, New Delhi

2. College of Agriculture, Indore-

1. **B.B. Kushwah received certificate of appreciation** in outstanding accomplishment in collaborative work in the development of Sorghum variety RVJ 2357 during 2021.
2. **N.S. Thakur received certificate of appreciation** in recognition of outstanding accomplishment in Collaborative work in the Development of Sorghum Variety RVJ 1862 under AICRP on Sorghum, RVSKVV, College of Agriculture, Indore by Honorable Vice Chancellor and Director Research Services, RVSKVV, Gwalior.
3. **N. Kumawat got Young Agronomist Award 2020** on the occasion of International Web Conference on "Perspective on Agricultural ad Applied Sciences in COVID-19 Scenario (PAAS-2020)" organized by Agricultural 7 Environmental Technology Development Society (AETDS), U.S. Nagar Uttrakhand during October 4-6 October 2020
4. **N.S. Thakur received Reviewer Excellence Award** in recognition of significant and outstanding contribution to the Legume Research Journal and reviewing the article "Yield analysis of chickpea (Cicer arietinum) + mustard (Brassaca juncea) intercropping system as influenced by weed management practices" on dated 20-07-2020 from the Editors of ARCC Journals.

5. **Jitendra Patidar awarded Second Best Poster Presentation** in Indian Society of Weed Science Biennial Conference on "Weed Management for Enhancing Farmers' Income and Food Security", held at ICAR - Central Coastal Agricultural Research Institute, Goa (India) during 5-7 February, 2020.
6. **Jitendra Patidar awarded Fellowship for training of Young Scientist** of M.P. Council of Science and Technology in 35th MP young scientist Congress during 2020.
7. **Dr. Swati Barche received BIOVED YOUNG SCIENTIST ASSOCIATE AWARD 2020** on the 22nd Agricultural Scientists and Farmers Congress on PHT & Management for empowering the rural society and Employment Generation on 22-23 Feb,2020 at Prayagraj.
8. Dr. R.K. Singh received Research excellence award 2020 by Institute of Scholars.

3. KNK, College of Horticulture, Mandsaur

1. Soni Nitin, Meena K.C. Khan K.A., Patidar D. K., Haldhar Ajay and Thakur Riya. awarded with Research of Excellence Fellow award for outstanding contribution in the field of Horticulture by Society for Scientific Development in Agriculture and Technology, on the occasion of International Conference on GRISAAS-2020 during 28-30December, 2020.
2. Soni Nitin, got Appreciation letter form Dean college of Horticulture on 26th January 2021

12. VISITS ABROAD: Nil

13. DISTINGUISHED VISITORS:

1. **RAK, College of Agriculture, Sehore-** Hon'ble Vice chancellor Dr.S.K.Rao and Board members Dr. V.S.Tomar and Dr Arvind Kumar Hon'ble vice chancellor CAU Jhansi visited college campus and research fields and interact with scientists on11.02.2021

2. **KNK, College of Horticulture, Mandsaur-**

S.No.	Name of dignatory	Designation	Period	Purpose
1	Shri Kamlashankar Vishvakarma	Former OSD to Minister at Ministry of Health and Family Welfare, Government of India and Member of Human Right Commission, Government of India	10.08.2020	To visit vermicompost unit

14. PUBLICATIONS:

Research papers/Abstract (Presented & Published)/Books/Book Chapters/ Teaching Manual/ Popular Articles etc.

S. No.	Category of publication	Nos
1	Papers Published in National and International Journals	126
2	Abstract published in various conference/souvenir	09
3	Books	13
4	Practical Manual/Popular Articals	06

14.1 Papers Published in National and International Journals:

Research papers:

S.No.	Author (s)	Title	Journal	Volume	Page No.	Year	NASS Rating	JID	ISSN	National / International
Department of Horticulture:										
1	Devendra Vishvakrma, Rajesh Lekhi, Karan Vir Singh, Manoj Kumar Kureel and Dhan Singh Mandloi (2020).	Effect of biofertilizers with levels of fertilizer on growth of onion bulbs.	*The Pharma Innovation Journal.*	**9**(7)	592-595	2020	5.03		2349-8242	
2	Devendra Vishvakrma, Rajesh Lekhi, Karan Vir Singh and Vikas Mandloi	Effect of biofertilizers with levels of fertilizer on yield attributes and economic of onion bulbs.	*Journal of Pharmacognosy and Phytochemistry.*	**10**(1):	2570-2573.	2021	5.21		2349-8234	
3	Shriya Rai, Dr. Karan Vir Singh, Dr. Arjun Kashyap and Priyanka Gangele	Influence of PGRs, sowing time and varieties on growth of coriander (*Coriandrum sativum* L.)	Journal of Pharmacognosy and Phytochemistry	**9**(5)	1400-1403	2020	5.21		2278-4136	
4	Shriya Rai, Dr. Karan Vir Singh, Dr. Arjun Kashyap and Priyanka Gangele	Effect of PGRs, sowing time and varieties on growth of coriander (*Coriandrum sativum* L.) under gird region condtions	International Journal of Chemical Studies	**8**(5)	1449-1452	2020	5.31		2349-8528	
5	Priyanka Gangele, Dr. Rashmi Bajpai, Dr. Arjun Kashyap, Shriya Rai and Shiv	Impact of biofertilizers and levels of zinc and potassium on growth analytical parameters of	International Journal of Chemical Studies	**8**(5)	2198-2200	2020	5.31		*2349-8528*	

	Kumar Ahirwar	Potato (*Solanum tuberosum* L.)								
6	Priyanka Gangele, Dr. Rashmi Bajpai, Dr. Arjun Kashyap, Shriya Rai and Shiv Kumar Ahirwar	Effect of biofertilizers and levels of zinc and potassium on growth of potato (*Solanum tuberosum* L.)	Journal of Pharmacognosy and Phytochemistry	**9**(5)	863-866	2020	5.21		2278-4136	
7	Chythra Somanathan Nair, Rajesh Lekhi, Dev Jatav and Jyoti Ahirwar	Influence of Edible Coatings with and without calcium on physico-chemical characteristics of Guava (*Psidium guajava* L.) cv. Gwalior-27 during storage	International Journal of Current Microbiology and Applied Sciences	**10**(02)	1200-1208	2021	5.38		*2319-7706*	
8	Khushboo Tandon, PKS Gurjar, Priyanka Gurjar and R Lekhi	Effect of organic substances and plant growth regulators on growth of tamarind (*Tamarindus indica* L.) Seedlings	International Journal of Chemical Studies	**9**(1)	1700-1703	2020	5.31		*2349-8528*	
Department of Agronomy										
9	Gupta V, Sasode DS, Joshi E and Singh Y.K.	Response of non-chemical approaches of weed management in potato (*Solanum tuberosum)* crop under organic cultivation mode	*Indian Journal of Agricultural Sciences*	90 (11)	2076-82	2020	6.21	I032	0019-5022	National
10	Gupta V, Sasode DS, Joshi E Tiwari S and Singh YK	Weed flora dynamics and yield of mustard as influenced by tillage and weed management in pearlmillet-mustard-cowpea cropping system	*Indian Journal of Weed Science*	52(3)	254–258	2020	5.84	L107	0974-8164	National
11	Bhadu K, Gupta V, Rawat GS and Sharma J	Comparative performance of pigeonpea (*Cajanus cajan* (L). Millsp.) based intercropping systems with short duration pulses and oilseed crops in gird region of M.P.	*International Journal of chemical studies*	8(5)	192–194	2020		I193	2349-8528	International
12	Mohaniya LS, Sasode	Integrated Weed	*International Journal of*	9(10)	3475-3486	2020		I207	2319-7692	International

	DS and Gupta V	Management Studies in Potato (Solanum tuberosum L.)	*Current Microbiology and Applied Sciences*							
13	Gupta V, Joshi Ekta, Sasode D.S. and Kasana B.S.	Nodulation, weed flora and yield of greengram *(Vigna radiata* L.) influenced by use of herbicides	*Indian Journal of Agricultural Sciences*	90 (7)	1241–44	2020	6.21	I032	0019-5022	National
14	Sasode DS, Joshi E, Jinger D, Sasode RS, Gupta V and Singh YK	Conservation tillage and weed manage-ment practices effect on weeds, yield and profitability of cowpea (*Vigna* unguiculata)	*Indian Journal of Agricultural Sciences*,	90 (1)	86-90	2020	6.21	I032	0019-5022	National
15	Sasode DS, Joshi E, Gupta V, Singh YK.	Weed Flora Dynamics and Growth Response of Green Gram (*Vigna radiata* L.) to Weed Management Practices	*International Journal of Current Microbiology and Applied Sciences*	9(4)	365-370	2020		I207	2319-7692	International
	Department of Plant Pathology:									
16	Chobe, D.R., Singh, R., US,Sharath and Pandya RK	Mutation induced alteration in agronomic traits of M1 generation chickpea.	*Journal of Pharmacognosy and Phytochemistry*	9 (3)	1978-1984	2020	5.21	S/2042/SDM/NW/2014)	2278-4136	National
17	Sharma, S.; Singh, Reeti; Kumar, A.	The biochemical changes in cluster bean leaves due to Alternaria blight infection.	*International Journal of Chemical Studies*	8(3)	146-153	2020	5.31		2349-8528	International
18	Anupriya, Sasode, S. Rajni and Prahlad,	*In-vitro* evaluation of different culture media for the growth of *Alterneria cucumerina* var. *cyamopsidis* caused Alternaria leaf spot of cluster bean	*International Journal of Chemical Studies*	8(2)		2020	5.38		2319-7692	International
19	Kashyap, V., Patidar, J.K., Singh, R. and Pandya, R.K.	Occurrence and distribution of chickpea wilt in central part of	*International Journal of Chemical Studies*	8(6)	1170-1172	2020	5.31		2349-8528	International

		India								
20	Singh, P. K., Patidar, J. K., Singh, R. and Roy, S.	Screening of Potato Varieties against Black Scurf Caused by *Rhizoctonia solani* Kuhn	*International Journal of Current Microbiology and Applied Sciences*	10(1)	1444-1449	2021	5.38		2319-7692	International
Department of Agricultural Extension and Communication										
21	Sen Rashmita, Sharma Prashant , Pateriya Rinky and Sharma Prabhaker	Training need of farm women regarding improved agronomical horticultural and poultry practices in gird zone Mp	Pharacognosy and phyto chemistry	Sp9(4)	150-154	2020	5.21	J415	15-154	National
22	Lalita Nargawe and Shobhana Gupta	Mass Media Utilization Behaviour of Farmers in Nimar Agro Climatic Region of Madhya Pradesh	Journal of Community Mobilization and Sustainable Development	Vol. 16(2),	319-324	2021	5.67	J158	2230-9047	National
23	Lalita Nargawe and Shobhana Gupta	Mass Media Preferences of the Farmers: A Study in Nimar Agro Climatic Region of Madhya Pradesh	New Age International Journal of Agriculture Research and Development	Vol.3(2)	1-6	2021	-	**-**	-	International
24	Rawat R; Sharma P; Daipuria, O.P. and Sharma, P	Association between aspects of dairy farmers and their overall annual income.	International Journal of Agriculture sciences	Vol.12(21)	10367-10369	2020	4.73	I160	0973-130X	International
25	Rawat R; Daipuria, O.P. and Sharma, P	Association between aspects of dairy farmers and their annual income through dairy farming.	International Journal of Agriculture sciences	Vol.12(21)	10345-10347	2020	4.73	I160	0973-130X	International
Department of Soil Science										
26	Dharmendra Singh, Sangeeta Lenka, Narendra Kumar Lenka, Sudhir Kumar Trivedi, Sudeshna Bhattacharjya	Effect of Reversal of Conservation Tillage on Soil Nutrient Availability and Crop Nutrient Uptake in Soybean in the Vertisols of	Sustainability	12	6608	2020	8.59	S096	2071-1050	International

	, Sonalika Sahoo, Jayanta Kumar Saha and A. K. Patra	Central India								
	Department of Environmental Science									
27	Amita Sharma, Shashi.S.Yadav & Manoj Bansal	Perennial fodder crops as a tool for carbon dioxide assimilation in winter by application of best combination of fertilizer doses	International Journal of creative research thoughts	8, Issue	1765-1774	2020	13.69		2320-2882	International
28	Amita Sharma, Sonu Sagar, Shashi.s.Yadav & Lakhan S. Mohaniya	Growth and Yield Bdehaviour of Pigeon Pea (Cajanus cajan L.) and Black gram (Vigna mungo L. Under Different Levels of Elevated CO2	International Journal of creative research thoughts	8, Issue	235-244	2020			2320-2882	International
29	Amita Sharma, Gyanaranjan Sahoo, Gaurav Sharma	Rural Development Approaches and Strategies	Sambodhi Journal	44		2021	11.80		2249-6661	International
30	Gyanaranjan Sahoo, Afaq Majid Wani and Amita Sharma	Socio-Economic and Ecological Effect of Covid-19	International research journal	9		2021			2229-4929	International
31	Amita Sharma & Gyanaranjan Sahoo	Agroforestry in Organic Farming	Magazine	02, Issue 04		2021			2582-7049	
32	Gyanaranjan Sahoo, Afaq Majid wani, Sandeep Rout, Amita Sharma Satyajeet Kar and Ajay Kumar Prusty	Impact and Contribution of Forest in Mitigating Global Climate Change	Design engineering	04	667-682	2021	8.83		0011-9342	International
33	Gyanaranjan Sahoo, Majid wani, Amita Sharma, Sandeep Rout	Agroforestry for forest and landscape restoration	International Journal of advance study and research work	Special issue ICROIRT	536-542	2020			2281-5997	International
34	Gaurav Sharma , Amita Sharma , M.J. Dobriyal and Vishnu Kumar	Effective utilization of degraded soil and undulating lands of Chambal	AGRI-Life	02 issue 02	11-14	2020				International

		ravines: Possibilities & opportunities								
	Department of Plant molecular Biology and Biotechnology									
35	Mishra, N.TripathiM.K.; Tiwari S.Tripathi N.Sapre S. Ahuja, A.andTiwari, S.	Cell Suspension Culture and In Vitro Screening for Drought Tolerance in Soybean Using Poly-Ethylene Glycol.	Plants	10 (517)	1-20	2021	8.76	P130	2223-7747	International
36	Tripathi, M.K.; Tripathi, N.; Tiwari, S.; Tiwari, G.; Mishra, N.; Bele, D.; Patel, R.P.; Sapre, S.; Tiwari, S.	Optimization of Different Factors for Initiation of Somatic Embryogenesis in Suspension Cultures in Sandalwood (Santalum album L.)	Horticulturae	7 (118)	2-15	2021	-	-	-	International
37	Neha Gupta, Sushma Tiwari, M. K. Tripathi and Sameer S. Bhagyawant	Antinutritional and Protein Based Profiling of Diverse Desi and Wild Chickpea Accessions	Current Journal of Applied Science and Technology	40 (06)	7-18	2021	4.71	C186	2457-1024	International
38	Vinod Kumar Sahu, Sushma Tiwari, M. K. Tripathi, Neha Gupta, R. S. Tomar and M Yasin	Morpho-physiological and biochemical traits analysis for Fusarium wilt disease using gene-based markers in desi and Kabuli genotypes of chickpea (Cicer arietinum L.)"	Indian journal of Genetics and Plant breeding,	80(2)	163-172	2020	6.55	I068	0019-5200	National
39	Vinod Kumar Sahu, Sushma Tiwari, Neha Gupta, M K Tripathi and M Yasin (2020) Doi 10.18805/LR-4265	Evaluation of physiological and biochemical contents in Desi and Kabuli chickpea.	Legume Research	Doi 10.18805/LR-4265		2020	6.53	L014	050-5371	National
40	Nishi Mishra, M.K. Tripathi, Sushma Tiwari, Niraj Tripathi1, H.K. Trivedi (2020) Legume Research.	Morphological and Molecular Screening of Soybean Genotypes against Yellow Mosaic Virus Disease.	Legume research	doi 10.18805/LR-4240		2020	6.53	L014	050-5371	National
41	Baghel, R., Sharma, A. K., Tiwari, S., Tripathi, M. K. and Tripathi, N.	Genetic diversity analysis of Indian mustard (Brassica spp.) germplasm lines using SSR molecular markers.	Int. J. Curr. Microbiol. App. Sci.	9 (12)	137-143	2020	-	I207	2319-7692	National
42	Verma, K., Tripathi, M.K.,	Analysis of genetic diversity	Int. J. Curr. Microbiol. App.	10 (01)	1108-1117	2021	-	I207	2319-7692	National

	Tiwari, S. and Tripathi, N.	among Brassica juncea genotypes using morpho-physiological and SSR markers.	Sci.							
43	Choudhary M L, Tripathi M K, Tiwari S, Pandya R K, Gupta N, Tripathi N and Parihar P	Screening of Pearl Millet [Pennisetum glaucum (L.) R.Br.] Germplasm Lines for Drought Tolerance Based on Morpho-physiological Traits and SSR Markers.	Current Journal of Applied Science and Technology.	40(5)	46-63	2021	4.71	C186	2457-1024	International
44	Deepak Kumar Ausari1, Bharat Singh,Aakash, Rahul Kumawat1 and Yashwant Gehlot	GIS Based Mapping of Soil Fertility Status of Tehsil Jobat, District Alirajpur, Madhya Pradesh, India	International Journal of Current Microbiology and Applied Sciences	9	60-69	2020	5.38			International
45	Bharat Singh, Shweta Pawar, Ashok Sharma, N.S. Thakur and Rini Shrivas	Effect of organics and inorganics on soil properties - A step towards nutrient management in Vertisols of Malwa Region	International Journal of Current Microbiology and Applied Sciences	10	1-10	2020	5.38			International
46	Shweta Pawar, Bharat Singh, N.S. Thakur, Ashok Sharma, and Rini Shrivas	Integrated Nutrient Management – A remedy for enhancing the lives of Microbes in soil	International Journal of Current Microbiology and Applied Sciences	10	11-15	2020	5.38			International
47	Shweta Pawar, Bharat Singh, Ashok Sharma, N.S. Thakur and Rini Shrivas	Nutrient Management Practices for Enhancing Soybean Production in Rainfed condition	International Journal of Current Microbiology and Applied Sciences	10	16-23	2020	5.38			International
48	Rini Shrivas, Bharat Singh, N.S. Thakur, Ashok Sharma, and Shweta Pawar	Reduced tillage and use of organics: A progressive manoeuvre towards conservation of resources and improvement in soil intrinsic properties.	International Journal of Current Microbiology and Applied Sciences	10	24-35	2020	5.38			International
49	SC Tiwari, Narendra Kumawat, KS Bangar, RK Sharma, MJ Kaledhonkar and BL Meena	Yield and water productivity of cabbage on sodic vertisols as influenced by drip application rate and irrigation	Journal of Soil Salinity and Water Quality	12	271-276	2020	4.80			National

		schedule								
50	Mr. Anand Mulewa, Dr. Sandhya Choudhary, Dr. D. K. Verma	Study of Tomato Producer's Entrepreneurial Behaviour under National Horticulture Mission (NHM) in Dhar District of Madhya Pradesh	International Journal of Advances in Agricultural Science and Technology,	Vol.7 Issue.4,	17-22	April-2020,	3.77	**2348 - 1358**		International Journal
51	Mr. Anil Singh, Dr. Sandhya Choudhary, Dr. S.K. Choudhary, Dr. Deepak Kumar Verma	A Study on Impact of NICRA (National Innovation of Climate Resilient Agriculture) Project on Adoption of Recommended Production Technology of chickpea in Indore block, Indore district	*IOSR Journal of Agriculture and Veterinary Science,*	Volume 14, Issue 2 Ser.	33-36	(February 2021).	3.77	2319-2380		International Journal
52	Mr. Pankaj Sharma, Dr. Sandhya Choudhary, Dr. S.K. Choudhary, Dr. Deepak Kumar Verma	A Study on Identification of Indigenous Technology Knowledge (ITK) and its Utilization in Contemporary Modern Agriculture at ur District of Madhya Pradesh	*International Journal of Advances in Agricultural Science and Technology*	Vol.8 Issue.2	33-38	February-2021	3.77	**2348 - 1358**		International Journal
53	Ms. Nikita Saiyam, **Dr. Deepak Kumar Verma,** Dr. Sandhya Choudhary	A Study on Job Performance of Anganwadi Workers under ICDS Scheme in Sehore District of Madhya Pradesh.	*International Journal of Advances in Agricultural Science and Technology,*	Vol.8 Issue.2	49-54	February-2021	3.77	**2348 - 1358**		International Journal
54	Singh A.K., Singh R.S., Singh A.K., Kumar R., **Kumawat N.**, Singh N.K., Singh, S.P. and Shanker R.	Effect of Weed Management on Weed Interference, Nutrient Depletion by Weeds and Production Potential of Long Duration Pigeonpea (*Cajanus cajan* L.) under Irrigated	International Journal of Current Microbiology and Applied Sciences	9(1)	676-689	2020	-	-	-	International
55	**Kumawat N.,** Yadav R.K., Singh M., Dudwe T.S. and Tomar I.S.	Effect of phosphorus and bioinoculants and their residual effect on succeeding chickpea (*Cicer arietinum*) cropping system	Indian Journal of Agricultural Sciences,	90 (2)	320-325	2020	6.21	-	-	National
56	Kumar R. Deka, B.C., **Kumawat N.**	Effect of integrated nutrition on	Indian Journal of Agricultural Sciences	90 (2)	431-435	2020	6.21	-	-	National

	and Thirugnanavel A.	productivity, profitability and quality of french bean (*Phaseolus vulgaris*).								
57	Meena B.L., Singh R.K. , Meena R.S., **Kumawat N.** and Joshi N.	Effect of rice residue and weed management practices on growth and yield of wheat.	International Journal of Current Microbiology and Applied Sciences	9(6)	2361-2367	2020	-	-	-	International
58	Meena S.K., Mundra S.L., Singh V., Meena R.S., Meena V., Bhimwal J.P., Jat H. and **Kumawat N.**	Economical weed management practices to enhance the production of clusterbean [*Cyamopsis tetragonoloba* (L.) Taub.]	International Journal of Chemical Studies	8(5)	127-132	2020	-	-	-	International
59	Meena S.K. , Mundra S.L., Meena R.S., Sumariya H. K., Chaudhary P., Yadav T.K and **Kumawat N.**	Response of clusterbean (*Cyamopsis tetragonoloba* L.) to weed management practices and phosphorus levels under sub-tropical climatic conditions of Rajasthan	International Journal of Current Microbiology and Applied Sciences,	*9*(9)	748-755	2020	-	-	-	International
60	Tiwari S.C., **Kumawat N.,** Bangar K.S., Sharma R.K. Kaledhonkar M.J. and Meena B.L.	Yield and water productivity of cabbage on sodic as influenced by drip application rate and irrigation schedule	Journal of Soil Salinity and Water Quality,	12(2)	271-276	2020	4.94	-	-	National
61	Kushwaha artika Singh,. **Choudhary S.K.**	Innovative farming practices and their effects on the economic viability of crops of Malwa region	International Journal of advanced research		2320-5407	2020	-	-	-	International
62	**Bharat Singh**, Shweta Pawar, **Ashok Sharma, N.S. Thakur** and RiniShrivas	Effect of organics and inorganics on soil properties - A step towards nutrient management in Vertisols of Malwa Region.	International Journal of Current Microbiology and Applied Sciences	10	1-10	2020	-	-	-	International
63	Shweta Pawar, **Bharat Singh, N.S. Thakur, Ashok Sharma,** and RiniShrivas	Integrated Nutrient Management – A remedy for enhancing the lives of Microbes in soil.	International Journal of Current Microbiology and Applied Sciences	10	11-15	2020	-	-	-	International
64	Shweta Pawar,	Nutrient Management	International Journal of	10	16-23	2020	-	-	-	International

	Bharat Singh, Ashok Sharma, N.S. Thakur and RiniShrivas	Practices for Enhancing Soybean Production in Rainfed condition.	Current Microbiology and Applied Sciences							
65	RiniShrivas, **Bharat Singh, N.S. Thakur, Ashok Sharma** and Shweta Pawar	Reduced tillage and use of organics: A progressive manoeuvre towards conservation of resources and improvement in soil intrinsic properties	International Journal of Current Microbiology and Applied Sciences	10	24-35	2020	-	-	-	International
66	R.L. Rajput, **B.B. Kushwaha**	Yield Analysis of Chickpea (*Cicer arietinum*) with Mustard (*Brassaca juncea*) Intercropping System as Influenced by Weed Management Practices	Legume Research- An International Journal	44 (Issue 1)	94-97	2021	6.53	10.18805/LR-3842	-	International
67	Pankaj Sharma; Dr. Sandhya Choudhary; **Dr. S.K. Choudhary; Dr. Deepak Kumar Verma**	A Study on Identification of Indigenous Technology Knowledge (ITK) and its Utilization in Contemporary Modern Agriculture at Shajapur District of Madhya Pradesh	International Journal of Advances in Agricultural Science and Technology	Vol.8 Issue.2,	33-38.	2021	-	-	-	International
68	Mr. Anil Singh, Dr. Sandhya Choudhary, **Dr. S.K. Choudhar, Dr. Deepak Kumar Verma**	A Study on Impact of NICRA (National Innovation of Climate Resilient Agriculture) Project on Adoption of Recommended Production 69Technology of chickpea in Indore block, Indore district	*IOSR Journal of Agriculture and Veterinary Science*	*Volume 14, Issue 2 Ser. I.*	*33-36*	2021	-	*e-ISSN: 2319-2380*	-	International
69	Narsingh Dudawe, Dr. Sandhya Choudhary, **Dr. S.K. Choudhary and Dr. Deepak Kumar Verma**	A study of technological gap in cultivation of Bt-cotton under FLD through KVK Khargone (M.P.)	International Journal of Agriculture Extension and Social Development	Volume 4; Issue 1	106-108	2021	-	-	-	International
70	**Swati Barche**, Dharmendra Singh Dodiyar and Kamal	Impact of priming techniques on germination, vigor, growth	Int.J. Agric. Sciences	16	170-174	2020	4.82	0973-130X		

	Singh Kirad	and survivability of drumstick (Moringa oleiferaL) Variety PKM-1 under open and protected condition								
71	**Swati Barche** and Kamal Singh Kirad	Efficacy of herbicides on weed growth and bulb yield in onion under kymour plateau region of Madhya Pradesh, India	Int .J. Agric. Sciences	16	218-222	2020	4.82	0973-130X		
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75	Dubey, S.C., Singh, B., Gupta, Om, Saxena, D. R., Sharma, O. P., Kohire, O. D., Anadani, V. P., **Singh, R. K**., and Tripathi, A. 2017.	Management of wilt and root rots of chickpea (*Cicer arietinum*) using *Trichoderma harzianum* in India	*Indian Journal of Agricultural Sciences.*	**87** (10)	1283-1287					
76	R K Singh, Sunil Silavat, Jagdish Kumar Patidar and	Development of chickpea wilt (Fusarium oxysporum f. sp. ciceri) incidence	*Indian Journal of Agricultural*	**89** (2)	47-51					

	Vivek Kashyap 2019.	in relation to soil edaphic and aerial environments	*Sciences.*							
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81	**Patidar Jagdish Kumar, Kashyap Vivek, Singh Prashant Kumar, Singh Reeti and Singh R.K. 2018.**	**Bio-control potential of native strains of *Trichoderma* against *Rhizoctonia bataticola* causing dry root rot of chickpea.**	International journal of Agriculture sciences.	10(2)	5066-5068					

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14.2 Abstract published in various conference/souvenir:

S. No	Author (s)	Title	Conference Proceedings	Page No.	Year	National / International
1	Gupta V, Sasode DS, Joshi E, Kasana BS, Bhadauria V.P.S, Singh YK.	Weed flora dynamics, growth and yield response of mustard (Brasica juncea L.) under conservation tillage and weed management practices	National Conference on Resource Conservation for Soil Security and Jalshakti: Farmeres Perspective in Bundelkhand (RCSSJ-2020)		2020	National
2	Sasode DS, Gupta V, Joshi E, Kasana BS and Singh YK	Weed flora dynamics, growth and yield response of pearlmillet (Pennisetum glaucum L.) under conservation tillage and weed management practices.	-		2020	National
3	Gupta V, Sasode DS, Joshi E,	Weed management in sweet corn in	ISWS Biennial Conference-2020 “Weed	241	2020	National

	Kasana B.S, Singh YK and Bhadauria V.P.S.	maize based non-chemical cropping system	Management for Enhancing Farmers income and Food Security			
4	Sasode DS, Gupta V, Kasna B.S, Joshi E, Singh YK and Bhadauria V.P.S.	Management of Cuscuta by different herbicides and its impact on yield of berseem (Trifolium alexandrinum L.) fodder crop	ISWS Biennial Conference-2020 "Weed Management for Enhancing Farmers income and Food Security	232	2020	National
5	Jitendra Patidar, M.L. Kewat and Shobha Sondhia	Residue concentration, persistence and dissipation of fomesafen in soybean crop and soil	Indian Society of Weed Science Biennial Conference on "Weed Management for Enhancing Farmers' Income and Food Security"	Proceedings, O-68, p-97	2020	National
6	Muni Pratap Sahu, Mewa Lal Kewat, J.K. Sharma, A.K. Jha, Jitendra Patidar and Lalita Badole	Effect of weed control practices and crop mulch against weeds in chickpea	Indian Society of Weed Science Biennial Conference on "Weed Management for Enhancing Farmers' Income and Food Security"	Proceedings, P-85, p-185	2020	National
6	Kunika Silodiya and Jitendra Patidar	Mitigation and management of herbicide residue in soil – A review	Indian Society of Weed Science Biennial Conference on "Weed Management for Enhancing Farmers' Income and Food Security"	Proceedings, P-165, p-265	2020	National

7	Jitendra Patidar	Effect of early-post-emergence herbicides against weeds in soybean in Madhya Pradesh	35th M. P. Young Scientist Congress	Souvenir p-5	2020	National

8. Megha Patidar and Jyoti Kanwar (2020). Study of physic-chemical quality and shelf life of custard apple (Annona squamosa L.) var. Arka Sahan by post harvest treatment during storage. Global approaches in natural resources management for climate smart agriculture. Souvenir Book GNRSA-2020:153-154.
9. Ghoshi Surendra, Meena K.C., Naruka I. S., Haldhar A., Soni Nitin and Patidar D.K. (2020) studies of garlic (Allium Sativum L) cultivar for morphology, yield and yield attributing traits under Malwa plateau of Madhya Pradesh National webinar on "approaches towards development of rural and agriculture sector in the present scenario" 8-9 May 2020.

14.3 BooK/Book Chapter/Reference Book:

S. No	Author (s)	Title	Book Name	Year	ISBN No	ISSN No
1.	**D.H. Ranade, M.L. Jadav, Indu Swarup, O.P. Girothia, D.V. Bhagat, Akhilesh Singh and Sharad Choudhary**	Rain Water Management in Rainfed Areas	Biotech Books, New Delhi,	2020	ISBN: 978-81-7622-458-1	-
2.	दीपक हरी रानडे, , दुष्यंत वजय भगत, ओमप्रकाश गरोठिया ,एस के चौधरी, आशीष उपाध्याय	"भूअपवाहित वर्षा जल एकत्रीकरण व संचत जल का उपयोग"	Biotech Books, New Delhi,	2020	ISBN: 978-81-7622-464-2	-
3.	K.S.Kirad, S.S. Chouhan, G.S.Ghatiye, Swati Barche, Bhupendra Kurmi and M.P. Nayak	Hand Book of INM	Hand Book of INM	2021	978-93-86658-24-1.	
4.	Gopala and R.K. Singh	Diseases of Field and Horticultural Crops and Their Management	Diseases of Field and Horticultural Crops and Their Management	2021	978-93-89996-31-9	
5.	R.K. Singh and Gopala	The mollicutes	Innovative approaches in diagnosis and management of crop diseases	--	978-1-77463-024-2	
6.	R.K. Singh and Gopala	Nano molecules and biocontrol agents	Innovative approaches in diagnosis and management of crop	--	978-1-77463-026-6	

			diseases			
7.	R.K. Singh and Gopala	Field and horticultural crops	Innovative approaches in diagnosis and management of crop diseases	--	978-1-77463-025-9	

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11. Jyoti Kanwar, Saniya, Santosh Choudhary and Suchitra Mishra (2021) *Carrisa carandus* L. *Perrenial underutilized Horticultural species of india*, Jaya Publishing House: 49-62.
12. Santosh Choudhary, Jyoti Kanwar, Mahesh Choudhary and Suchitra Mishra (2021). Zizyphus nummularia (Burm.f.) Wight et. Arn. *Perrenial underutilized Horticultural species of india*, Jaya Publishing House: 337-346
13. Soni, Nitin,Patidar D.K., Khan K.A. and Meena K.C.(2020) "Commercial production of grapes for developing the entrepreneur skill" published in 21 days NITP 2020 on recent technologies of agribusiness management and Agri entrepreneurship jointly organized RVSKVV, Gwalior and NADCL, Baramullya from 8 to 28 October 2020.

14.4 Popular Articles:-

1 Gopala and R.K. Singh Practical Manual on Diseases of Field and Horticultural Crops and their Management 2020
2 Dubey, Rajiv (2021). Vermicomposting Technology: An alternative approach in waste management. *Just Agriculture*, March 2021 pp-46-49.
3 भण्डारी, जितेन्द्र, कानपुरे, आर.एन., पाटीदार, डी.के. (2020) अनार की वैज्ञानिक खेती एवं महत्व मध्य भारत कृषक भारती ग्वालियर, अक्टूबर 2020 पृष्ठ 10–11
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