ANNUAL REPORT 2019-2020

MERA GAON MERA GAURAV

भाकृअनुप
ICAR

ICAR-Agricultural Technology Application Research Institute Ludhiana-141004, Punjab

ANNUAL REPORT 2019-2020

MERA GAON MERA GAURAV

ICAR-Agricultural Technology Application Research Institute

Ludhiana-141004, Punjab

Published by:
Director
ICAR-Agricultural Technology Application Research Institute, Zone-1
PAU Campus, Ludhiana-141004, Punjab, India
Tel:0161-2401018
Fax: 0161-2412719
Email: zcu1ldh@gmail.com
Website: htpp://www.atari1icar.res.in

Editors:
Pragya Bhadauria
Arvind Kumar

Compilation Assistance:
Karishma Singla

Year of Publication: 2021

Dr. Rajbir Singh
Director

भा.कृ.अनु.प.- कृषि प्रौद्योगिकी अनुप्रयोग अनुसंधान संस्थान, क्षेत्र-१, पं. कृ. वि.
परिसर, लुधियाना-१४१ ००४, पंजाब।
ICAR-Agricultural Technology Application Research Institute,
Zone-I, PAU Campus, Ludhiana-141 004

FOREWORD

"Mera Gaon Mera Gaurav" scheme was implemented by ICAR to promote the direct interface of scientists with the farmers to accelerate the lab to land process of the country. At present, the gap between need and actual number of extension workers is very wide that hampers the timely dissemination of recent technologies at grass-root level. The objective of this scheme is to provide farmers with required information, knowledge and advisories on regular basis by adopting villages by group of scientists constituted at the institute and university level. It has also been reflected in the progress made by 161 teams of 584 scientists from ICAR Institutes and SAUs covering 491 villages of Zone-I during 2019-2020.

I herewith take the opportunity to thank all the Nodal Officers, Co-Nodal Officers, multi-disciplinary teams of scientists of the ICAR Institutes and State Agricultural Universities and the editorial team who successfully put their efforts in bringing out this document. I hope this MGMG scheme has helped in enhancing the productivity of various agricultural enterprises and overall income of farmers.

Rajbir Singh

CONTENTS

1. INTRODUCTION

The Mera Gaon Mera Gaurav-MGMG (My Village My Pride) scheme was launched by the Hon'ble Prime minister on 25 July, 2015 on the occasion of the 87th Foundation Day of ICAR and 9th National Conference of KVKs at Patna. It is an innovative initiative, which was planned to promote the direct interface of scientists with the farmers to speed-up the lab to land process. The participation of small and marginal farmers in Indian Agriculture is very important as small and marginal holdings together, constitute 85 percent in terms of number of operational holdings and 44 percent of the cultivated area in the country during 2010-11. Small farmers put forth their desire on various forums to have timely information on investment in agriculture, loans, availability of the basic amenities, market rates, extension activities and facilities provided by different agencies, new research findings and technologies, etc.

Presently, various agencies are working in agriculture and farmers are keen to know about the services provided by them. The technologies developed and refined by research institutes, Agricultural Universities, private and other organizations are accepted and adopted to varied extent by farming community. Therefore, the awareness among farmers about these organizations and their programmes need to be created on regular basis.

Objective

The overall objective of this scheme is to provide farmers with required information, knowledge and advisories on regular basis by adopting villages. Under this scheme, scientists of National Agricultural Research and Education Systems (NARES) are working by selecting villages and remain in touch with the selected villages to provide information to the farmers on technical and other related aspects in a time frame through personnel visits and other means. At Institute/University level, many groups of multidisciplinary scientists work and one group normally consists of four scientists who adopt 4-5 villages.

Implementation

Under this scheme, scientists have selected villages as per their convenience and remain in touch with the selected villages and providing information to the farmers on technical and other related aspects in time frame through personal visits or on telephone. Being a resource person for the village, the scientists are also expected to monitor the process of adoption of agricultural technologies by the farmers. The scientists had make use of community radio, local newspapers, mobile messages , video, exhibition and local media and make initiatives to have dialogue with the marketing intelligence, market trends, the information on various agricultural organizations for finding solutions to their agricultural related problems. Scientists also created awareness among farmers about the climatic change, other customized services and protective measured and other issues of national and local importance. In this process of social transformation, scientists have local *Panchayats*, development agencies, NGOs and private organizations. In addition, scientists encouraged the ideology of clean and good agricultural techniques for producing good

quality agricultural products and linked this to *Swachchh Bharat Abhiyan*.

Selection of villages

The group of four scientists at every Institute/University was decided to adopt villages within the radius of 50-100 km from their place of working. Scientists sought necessary cooperation from kvks, *Panchayats* and other related departments at the local level in selecting the villages. A format has been devised to analyze farming, climate, social and economic condition of selected villages.

The ten tasks under MGMG

1. To identifies a village and strengthen interface with farmers.
2. To periodically update farmers about agricultural activities through phone and mobile messages.
3. To provide technology handout as per the agro-ecological conditions of the village.
4. To provide information to farmers about agricultural inputs, seed, fertilizer, chemical, agricultural machinery, climate, market, etc.
5. To educate farmers through newspapers, community radio etc.
6. To create awareness among farmers about the programmes being implemented by various organizations and institutions working at local level e.g. voluntary organizations, farmer's organization, ATMA, other Govt. departments.
7. To make farmers aware of the sensitive issues of national importance such as: *Swachchh Bharat Abhiyan*, climate change, water conservation, soil fertility etc.
8. To organize farmer's meet by visiting the selected villages as per need and facilitate the participation of specialists of the concerned institutes.
9. To identify technical problems at a village level and make use of those in prospective research programmes.
10. To generate technical, social and economic data related to village and to submit the quarterly report of work done.

Operational mechanisms

At national level, Assistant Director General (Agricultural Extension) principal Scientist, Division of Agricultural Extension, ICAR, New Delhi, is the nodal officer whereas at Zone level, Director, Agricultural technology Application Research Institute (Atari) is the Nodal Officer supported by one scientist of the institute. At Institute/Agricultural University level, a Principal Scientist/ Professor nominated as a nodal officer at institute /university level are responsible for the submission of their benchmark survey and reports to Director, ATARI who sends the consolidated report to Assistant Director General/ Principal Scientist (Agricultural Extension).

2. PROGRESS OF MERA GAON MERA GAURAV (MGMG) SCHEME

Punjab, Himachal Pradesh, Jammu & Kashmir, Ladakh and Uttarakhand are part of Zone-I. The MGMG scheme in this zone is being implemented by ICAR Institutes and SAUs. A total of 10 ICAR institutes and 06 State Agricultural Universities (SAUs) are working in this zone. All the ICAR Institutes and SAUs of this zone have nominated Nodal Officer at institute/university level (Annexure-I). Table 1 clearly depicts that 161 teams of scientists were formed comprising of 584 scientists from ICAR Institutes and SAUs who have adopted 491 villages under this scheme (Annexure-II).

Table 1: Summary of Zone-I during 2019-20

No. of ICAR Institutes/SAUs	No. of total teams formed	No. of total scientists	No. of total villages adopted
16	161	584	491

Table 2: Number of teams formed and villages selected by ICAR Institutes

S. No.	Name of Institution	No. of teams	No. of scientists	No. of villages
	ICAR Institutes			
1.	ICAR-CIPHET, Ludhiana	9	31	35
2.	ICAR-CITH, Srinagar	2	4	2
3.	ICAR-CPRI, Shimla	7	35	7
4.	ICAR-CPRS, Jalandhar	1	11	5
5.	ICAR-IIMR, Ludhiana	8	30	29
6.	ICAR-DCFR, Bhimtal	6	17	26
7.	ICAR-DMR, Solan	2	10	12
8.	ICAR-IISWC, Dehradun	20	76	93
9.	ICAR-VPKAS, Almora	5	34	25
10.	ICAR-ATARI Zone-I, Ludhiana	1	7	1
Total (A)		**61**	**255**	**235**

Table 3: Number of teams formed and villages selected by SAUs

S. No.	Name of Institution	No. of teams	No. of scientists	No. of villages
	SAUs			

1.	Dr. YSPUH&F, Solan	32	102	32
2.	CSKHPKV, Palampur	11	41	18
3.	GADVASU, Ludhiana	3	17	6
4.	GBPUA&T, Pantnagar	27	98	135
5.	PAU, Ludhiana	24	56	50
6.	SKUAST (K), Kashmir	3	15	15
Total (B)		**100**	**329**	**256**
Grand Total (A+B)		**161**	**584**	**491**

Activities undertaken under MGMG

Teams of scientists of various ICAR Institutes and SAUs working in Zone-I have conducted 1058 visits to their respective adopted villages and contacted 15596 farmers during 2019-2020. The teams also conducted 436 Interface meetings/*Gosthies* in which 10073 farmers participated. In order to motivate farmers to adopt new agricultural technology/ good practices and to show the superiority, applicability, economic advantages of new technologies; scientists have conducted 615.72 ha demonstrations at 3431 farmers' field on various crop and agricultural practices in their specialized area. Scientists of this zone also provided 1736 agro-advisory services by sending 115040 SMSs to farmers' mobile phones of adopted villages. Scientific literature developed by ICAR Institutes and SAUs on various aspects also provided to 20925 farmers so that farmers can use it later. Under this scheme, scientists also created linkages with other departments and agencies for the benefit of farmers of their adopted villages. Awareness amongst 22459 farmers was created on various agricultural technologies, practices, schemes of different developments departments, crop insurance, *Swachhata Abhiyan*, etc. (Table 4).

Table 4: Summary of activities organized by institutes/SAUs

S.No	Name of the activity	No. of activities conducted	No. of farmers participated & benefitted
1.	Visit to village by teams	1058	15596
2.	Interface meeting/ *Goshthies*	436	10073
3.	Training organized	411	8082
4.	Demonstrations conducted (ha)	615.72	3431
5.	Mobile based advisories (No.)	1736	115040
6.	Literature support provided	1351	20925

7.	Awareness created	550	22459
8.	Linkages developed with other agencies (No.)	197	9408

To accelerate the adoption of technologies or good agricultural practices in the adopted villages under MGMG, scientists also provided critical inputs for conducting demonstrations at farmers' field besides regular technical advice during farmers-scientist interface. During 2019-20, ICAR-Institutes and SAUs also provided more than 5500 quintals seeds to 2679 farmers, approximately 34645 planting material to 1256 farmers, more than 690 quintals fertilizers to 309 farmers as presented in Table 5.

Table 5: Input support provided in Zone-I

S.No.	Name of activity	Quantity	Number of farmers benefitted
1.	Seeds (q)	5524	2679
2.	Planting material (No.)	34645	1256
3.	Fertilizers (q)	696	309

3. ICAR INSTITUTE WISE PROGRESS UNDER MGMG

1. ICAR –Central Institute of Post Harvest Engineering (CIPHET), Ludhiana (Punjab)

No. of teams formed

ICAR-CIPHET has formed 9 multidisciplinary teams consisting of 31 scientists including one coordinator.

No. of villages selected

The 9 teams of CIPHET scientist have selected 35 villages of from Punjab. Bench mark survey of 15 villages was conducted by scientists of CIPHET during 2019-20.

Progress of the Institute

Total no. of team of scientists	Total no. of scientists	No. of villages	No. of blocks	No. of districts	Bench mark survey conducted (no. of villages)
9	31	35	8	4	15

Activities Undertaken

Teams of CIPHET scientists have organized 10 visits to their respective selected villages and contacted 225 farmers. Fourteen interface meetings/*Gosthies* were conducted in which 200 farmers participated. Scientists also provided 15 agro-advisory services by sending SMSs to 25 farmers. Scientist also created awareness among 30 farmers about basic, strategic and adaptive research for improving productivity and quality of important crops with emphasis on conservation and efficient utilization of natural resources and 375 farmers were benefitted during 2019-20.

Table 1: Activities organized by CIPHET during 2019-20

S.No	Name of activity	No. of activities conducted	No. of farmers participated & benefitted
1.	Visit to village by teams	1058	15596
2.	Interface meeting/ *Goshthies*	436	10073
3.	Mobile based advisories (No.)	1736	115040
4.	Literature support provided	1351	20925
5.	Awareness created	550	22459
6.	Linkages developed with other agencies (No.)	197	9408

Survey Conducted

2. ICAR –Central Institute of Temperate Horticulture (CITH), Srinagar (J&K)

No. of teams formed

ICAR- CITH has formed two teams of 4 scientists including one coordinator in each team.

No. of villages selected

Each Team of CITH scientists has selected one village. Thus a total of two villages were selected by CITH scientists under MGMG scheme. Bench mark survey of 2 villages was completed during 2019-20.

Progress of the Institute

Total no. of team of scientists	Total no. of scientists	No. of villages	No. of blocks	No. of districts	Bench mark survey conducted (no. of villages)
2	4	2	2	2	2

Activities Undertaken

Teams of CITH scientists have organized 13 visits to their respective selected villages and contacted 83 farmers. Only two interface meeting/*Gosthies* were conducted in which 19 farmers participated. A total of 15 demonstrations were laid out by the scientists at 49 farmers' field. Scientists also organized three training camps to 54 farmers. Scientists also provided 15 agro-advisory services by sending SMSs to farmers. Scientist also created awareness among 50 farmers about potential of new apple varieties, training and pruning, pollination management and horticultural crop production and protection.

Table 2: Activities organized by CITH during 2019-20

S.No	Name of the activity	No. of activities conducted	No. of farmers participated & benefitted
1.	Visit to village by teams	13	83

2.	Interface meeting/ *Goshthies*	2	19
3.	Training organized	3	54
4.	Demonstrations conducted (ha)	15	49
5.	Mobile based advisories (No.)	15	25
6.	Literature support provided	3	39
7.	Awareness created	3	50
8.	Linkages developed with other agencies (No.)	3	24

CITH scientists also provided critical inputs for conducting demonstrations at farmers' field besides regular technical advice during farmers-scientist interface. During 2019-20, CITH provided 1.1 quintals seeds to 34 farmers and 9000 no. of planting material to 15 farmers as presented in Table 3.

Table 3: Input support provided

S.No	Name of activity	Quantity	Area (ha)	Number of farmers benefitted
1.	Seeds (q)	5524	0.06	2679
2.	Planting material (No.)	34645	0.018	1256

Interface Meetings

3. ICAR –Central Potato Research Institute (CPRI), Shimla (H.P)

No. of teams formed

ICAR-CPRI has formed seven multidisciplinary teams of 35 scientists. Six teams consist of five scientists whereas one team has six scientists including one coordinator in each team.

No. of villages selected

Each team has selected only one village and thus a total of seven villages were selected by all the teams of CPRI. The selected villages' covers single development block of Shimla district. Bench mark survey of all seven villages completed during 2019-20.

Progress of the Institute

No. of team of scientists	No. of scientists	No. of villages	No. of blocks	No of districts	Bench mark survey conducted (no. of villages)
7	35	7	1	1	7

Activities Undertaken

Teams of CPRI scientists have organized 10 visits to their respective selected villages and contacted 500 farmers. The teams also conducted one interface meetings/*Goshthies* in which 50 farmers participated. Scientists also organized one training camp benefitting to 40 farmers. Scientists provided twenty mobile based advisories to 4000 farmers of these villages. Scientific literature developed on various aspects also provided to 100 farmers. Awareness among 2000 farmers was created about cleanliness, improved potato cultivation practices, soil testing by scientists of CPRI.

Table 4: Activities organized by CPRI during 2019-20

S.No	Name of the activity	No. of activities conducted	No. of farmers participated & benefitted
1.	Visit to village by teams	10	500
2.	Interface meeting/ *Goshthies*	1	50
3.	Training organized	1	40
4.	Demonstrations conducted (ha)	20	4000
5.	Mobile based advisories (No.)	1	100
6.	Literature support provided	17	2000
7.	Awareness created	6	400
8.	Linkages developed with other agencies (No.)	3	500


Trainings Organized

4. ICAR –Central Potato Research Station (CPRS), Jalandhar (Punjab)

No. of teams formed

ICAR-CPRS has formed one team consisting of eleven scientists including coordinator.

No. of villages selected

The team of ICAR-CPRS scientist had selected five villages. Bench mark survey of all villages was conducted by scientists of ICAR-CPRS during 2019-20.

Progress of the Institute

No. of team of scientists	No. of scientists	No. of villages	No. of blocks	No. of districts	Bench mark survey conducted (no. of villages)
1	11	5	1	1	5

Activities Undertaken

Teams of ICAR-CPRS scientists have organized 12 visits to their respective selected villages and contacted 190 farmers. Only 3 interface meetings/*Gosthies* were conducted in which 52 farmers participated. Scientists also provided 30 agro-advisory services by sending SMSs to 654 farmers. Scientist also created awareness among 35 farmers about use of need based fertilizers and use of mask, goggles, hand gloves etc. at the time of spray of pesticides.

Table 5: Activities organized by CPRS during 2019-20

S.No	Name of the activity	No. of activities conducted	No. of farmers participated & benefitted
1.	Visit to village by teams	12	190
2.	Interface meeting/ *Goshthies*	3	52
3.	Mobile based advisories (No.)	30	654
4.	Awareness created	2	35
5.	Linkages developed with other agencies (No.)	2	80

During 2019-20, CPRS scientists also provided 6.65 quintals seeds to 7 farmers as presented in Table 6.

Table 6: Input support provided

S. No.	Name of input	Quantity (q)/No.	Area (ha)	No. of farmers benefitted
1.	Seeds (q)	6.65	0.2	7

On-farm Visits

5. ICAR –Indian Institute of Maize Research (IIMR), Ludhiana (Punjab)

No. of teams formed

ICAR-IIMR has formed eight multidisciplinary teams consisting of 30 scientists including one coordinator in each team.

No. of villages selected

The 8 teams of ICAR-IIMR scientist have selected 29 villages.

Progress of the Institute

No. of team of scientists	No. of scientists	No. of villages	No. of blocks	No. of districts	Bench mark survey conducted (no. of villages)
8	30	29	5	5	2

Activities Undertaken

Teams of ICAR-IIMR scientists have organized three visits to their respective selected villages and contacted 330 farmers. Only three Interface meetings/*Gosthies* were conducted in which 90 farmers participated. A total of 84 ha demonstrations were laid out by the scientists at 150 farmers' field. Scientists also provided 170 agro-advisory services by sending SMSs to 106 farmers. Scientist also created awareness among 380 farmers about basic, strategic and adaptive research for improving productivity and quality of important crops with emphasis on conservation and efficient utilization of natural resources.

Table 7: Activities organized by IIMR during 2019-20

S.No	Name of the activity	No. of activities conducted	No. of farmers participated & benefitted
1.	Visit to village by teams	3	330
2.	Interface meeting/ *Goshthies*	3	90
3.	Training organized	3	90
4.	Demonstrations conducted (ha)	84	150
5.	Mobile based advisories (No.)	170	106
6.	Literature support provided	2	50
7.	Awareness created	11	380
8.	Linkages developed with other agencies (No.)	8	110

During 2019-20, IIMR scientists provided more than 16 quintals seeds to 150 farmers and 680 quintals fertilizers to 250 farmers as presented in Table 8.

Table 8: Input support provided

S. No.	Name of input	Quantity (q)/No.	Area (ha)	No. of farmers benefitted
1.	Seeds (q)	16.8	84	150
2.	Fertilizers (q)	680	85	250



Illustrations Organized

6. ICAR-Directorate of Cold Water Fisheries Research (DCFR), Bhimtal (Uttarakhand)

No. of teams formed

ICAR-DCFR has formed six multi-disciplinary teams of 17 scientists including one coordinator in each team.

No. of villages selected

ICAR-DCFR has selected a total of 26 villages under MGMG scheme. Bench mark survey of six villages was completed during 2019-20.

Progress of the Institute

Total No. of team of scientists	Total No. of scientists	No. of villages	No. of blocks	No. of districts	Bench mark survey conducted (no. of villages)
6	17	26	12	10	6

Activities Undertaken

Teams of DCFR scientists have organized 104 visits to their respective selected villages and contacted 680 farmers. Twenty six interface meetings/*Gosthies* were conducted in which 647 farmers participated. A total of 40 demonstrations were laid out on 40 ha by the scientists at farmers' field. Scientists also organized twenty eight training camps benefitting 842 farmers. Scientists also provided 82 agro-advisory services by sending SMSs to 202 farmers. Scientist also created awareness among 987 farmers about potential of new apple varieties, training and pruning, pollination management and horticultural crop production and protection.

Table 9: Activities organized by DCFR during 2019-20

S.No	Name of the activity	No. of activities conducted	No. of farmers participated & benefitted
1.	Visit to village by teams	104	680
2.	Interface meeting/ *Goshthies*	26	647
3.	Training organized	28	842
4.	Demonstrations conducted (ha)	40	308
5.	Mobile based advisories (No.)	82	202
6.	Literature support provided	25	964
7.	Awareness created	27	987
8.	Linkages developed with other agencies (No.)	10	286

During 2019-20, DCFR scientists provided approximately 32 quintals seeds to 28 farmers as presented in Table 10.

Table 10: Input support provided

S. No.	Name of input	Quantity (q)/No.	No. of farmers benefitted
1.	Seeds (q)	32	28

Awareness about New Apple Varieties

7. ICAR –Directorate of Mushroom Research (DMR), Solan (H.P)

No. of teams formed

ICAR-DMR has formed two multidisciplinary teams of ten scientists including one coordinator in each team.

No. of villages selected

Both teams have selected 12 villages, which covers *kandaghat* development block of Solan district of Himachal Pradesh. Bench mark survey of all villages was completed during 2019-20.

Progress of the Institute

Total No. of team of scientists	Total no. of scientists	No. of villages	No. of blocks	No. of districts	Bench mark survey conducted (no. of villages)
2	10	12	1	1	12

Activities Undertaken

Teams of DMR scientists have organized 7 visits to their respective selected villages and contacted 85 farmers. The teams also conducted six interface meetings/*Gosthies* in which 91 farmers participated. Scientists also organized four training camps to 37 farmers. A total of fifteen demonstrations were laid out on DMR technologies by the scientists at 115 farmers' field. Scientists provided 12 mobile based advisories to farmers of these villages in which 300 farmers participated. Scientific literature developed on various aspects also provided to 90 farmers. Awareness among 110 farmers was created by scientists of DMR about mushroom cultivation technology and nutritional and medicinal values of the mushrooms. Soil Expert from UHF,

Nauni was invited to deliver lecture on Soil health. Problems related to soil were also addressed to farmers.

Table 11: Activities organized by DMR during 2019-20

S.No	Name of the activity	No. of activities conducted	No. of farmers participated & benefitted
1.	Visit to village by teams	7	85
2.	Interface meeting/ *Goshthies*	6	91
3.	Training organized	4	37
4.	Demonstrations conducted (ha)	15	115
5.	Mobile based advisories (No.)	12	300
6.	Literature support provided	121	90
7.	Awareness created	6	110
8.	Linkages developed with other agencies (No.)	1	65

Teams of ICAR-DMR also provided critical inputs for conducting demonstrations at farmers' field besides regular technical advice during farmers-scientist interface. During 2019-20, 0.6 quintals of planting material to 30 farmers as presented in Table 12.

Table 12: Input support provided

S. No.	Name of input	Quantity (q)/No.	No. of farmers benefitted
1.	Planting material (q)	0.6	30

Mushroom Cultivation Technology

8. ICAR-Indian Institute of Soil and Water Conservation (IISWC), Dehradun (Uttarakhand)

No. of teams formed

ICAR-IISWC has formed 20 multi-disciplinary teams of 76 scientists including one

coordinator in each team.

No. of villages selected

ICAR-IISWC has selected a total of 93 villages under MGMG scheme. Bench mark survey of 93 villages was completed during 2019-20.

Progress of the Institute

Total no. of team of scientists	Total no. of scientists	No. of villages	No. of blocks	No. of districts	Bench mark survey conducted (no. of villages)
20	76	93	24	14	93

Activities Undertaken

Teams of IISWC scientists have organized 98 visits to their respective selected villages and contacted 2134 farmers. Fifty interface meetings/*Gosthies* were conducted in which 1444 farmers participated. Demonstrations on 14.1 ha were laid out by the scientists at 118 farmers' field. Scientists also organized 15 training camps to 559 farmers. Scientists also provided 51 agro-advisory services by sending 353 SMSs to farmers. Scientist also created awareness among 1260 farmers about the soil and water conservation techniques and methods.

Table 13: Activities organized by IISWC during 2019-20

S.No	Name of the activity	No. of activities conducted	No. of farmers participated & benefitted
1.	Visit to village by teams	98	2134
2.	Interface meeting/ *Goshthies*	50	1444
3.	Training organized	15	559
4.	Demonstrations conducted (ha)	14.1	118
5.	Mobile based advisories (No.)	51	353
6.	Literature support provided	15	421
7.	Awareness created	25	1260
8.	Linkages developed with other agencies (No.)	22	1046

Table 14 clearly showed that scientists also provided quality seeds for conducting demonstrations at farmers' field besides the regular technical advice during farmers-scientist interface. During 2019-20, IISWC provided more than 8 quintals seeds to 235 farmers, approximately 9120 no. of planting materials to 135 farmers and 16 quintals fertilizers benefitting 25 farmers.

Table 14: Input support provided

S. No.	Name of input	Quantity (q)/No.	Area (ha)	No. of farmers benefitted
1.	Seeds (q)	8.16	31	235
2.	Planting material (No.)	9120	57.4	135
3.	Fertilizer (q)	16	11.2	25

Understanding Soil & Water Conservation Techniques

9. ICAR-Vivekananda Parvatiya Krishi Anusandhan Sansthan (VPKAS), Almora (Uttarakhand)

No. of teams formed

ICAR-VPKAS has formed 5 multi-disciplinary teams of 34 scientists including one coordinator in each team.

No. of villages selected

ICAR-VPKAS has selected a total of 25 villages under MGMG scheme which included 5 blocks and one district. Bench mark survey of all villages was also completed during 2019-20.

Progress of the Institute

Total No. of team of scientists	Total no. of scientists	No. of villages	No. of blocks	No. of districts	Bench mark survey conducted (no. of villages)
5	34	25	5	1	25

Activities Undertaken

Teams of VPKAS scientists have organized 25 visits to their respective selected villages and contacted 527 farmers. Fifteen Interface meetings/*Gosthies* were conducted in which 306 farmers participated. Scientists also organized three training camps to 86 farmers. A total of 85 demonstrations were laid out in 29 ha area at farmers' field. Scientists also provided 20 agro-

advisory services by sending SMSs to farmers. Scientist also created awareness among 121 farmers about basic, strategic and adaptive research for improving productivity and quality of important hill crops with emphasis on conservation and efficient utilization of natural resources

Table 15: Activities organized by VPKAS during 2019-20

S.No	Name of the activity	No. of activities conducted	No. of farmers participated & benefitted
1.	Visit to village by teams	25	527
2.	Interface meeting/ *Goshthies*	15	306
3.	Training organized	3	86
4.	Demonstrations conducted (ha)	29	185
5.	Mobile based advisories (No.)	20	255
6.	Literature support provided	126	126
7.	Awareness created	48	121
8.	Linkages developed with other agencies (No.)	4	171

To ensure that farmers benefit from best farm practices by providing required information, knowledge and advisories on regular basis by adopting villages under MGMG, scientists also provided critical inputs for conducting demonstrations at farmers' field. During 2019-20, VPKAS provided 1 quintal seeds to 49 farmers, approximately 40 planting material to 20 farmers as presented in Table 16.

Table 16: Input support provided

S. No.	Name of input	Quantity (q)/No.	Area (ha)	No. of farmers benefitted
1.	Seeds (q)	1	0.22	49
2.	Planting material (No.)	40	0	20

Strategic Approach to Improve the Hill Crops

10. ICAR –Agricultural Technology Application Research Institute (ATARI), Ludhiana (Punjab)

No. of teams formed

ICAR-ATARI has formed one multidisciplinary team of seven scientists including one coordinator.

No. of villages selected

The single team of ATARI scientists has selected one village of Ludhiana district. Bench mark survey of village was completed during 2019-20.

Progress of the Institute

Total no. of team of scientists	Total no. of scientists	No. of villages	No. of blocks	No. of districts	Bench mark survey conducted (no. of villages)
1	7	1	1	1	1

Activities Undertaken

Teams of ATARI scientists have organized 11 visits to their respective selected villages and contacted 230 farmers. Only three interface meetings/*Goshthies* were conducted in which 55 farmers participated. Demonstrations were laid out on 1.5 ha by the scientists at 10 farmers' field. Scientists also organized 3 training camps to 132 farmers. Scientists also provided 24 agro-advisory services by sending 350 SMSs to farmers. Scientist also created awareness among 335 farmers about basic, strategic and adaptive research for improving productivity and quality of important crops with emphasis on conservation and efficient utilization of natural resources

Table 17: Activities organized by ATARI during 2019-20

S.No	Name of the activity	No. of activities conducted	No. of farmers participated & benefitted
1.	Visit to village by teams	11	230
2.	Interface meeting/ *Goshthies*	3	55
3.	Training organized	3	132
4.	Demonstrations conducted (ha)	1.5	10
5.	Mobile based advisories (No.)	24	350
6.	Literature support provided	10	10
7.	Awareness created	8	335
8.	Linkages developed with other agencies (No.)	3	91

It is depicted in Table 18 that scientists also provided quality seeds for conducting demonstrations at farmers' field besides regular technical advice farmers-scientist interface. During 2019-20, ATARI provided 45 quintals seeds to 75 farmers and 110 no. of planting materials to 70 farmers.

Table 18: Input support provided

S. No.	Name of input	Quantity (q)/No.	No. of farmers benefitted
1.	Seeds (q)	45	75
2.	Planting material (No.)	110	70

Demonstrations Laid Out

4. UNIVERSITY WISE PROGRESS

1. Dr YS Parmar University of Horticulture and Forestry (Dr YSP UH&F), Solan (H.P)

No. of teams formed

Dr YSP UH&F has formed 32 multi-disciplinary teams of 102 scientists. Most of the teams consist of three scientists including one coordinator.

No. of villages selected

Each team of scientists has selected one village and a total of 32 villages were selected all the 32 teams of scientists. The selected villages cover five development blocks and two district of Himachal Pradesh. Bench mark survey of all selected villages was conducted during 2019- 2020.

Progress of the SAU

Total no. of team of scientists	Total no. of scientists	No. of villages	No. of blocks	No. of districts	Bench mark survey conducted (no. of villages)
32	102	32	5	2	32

Activities undertaken

Teams of scientists of Dr YSP UH&F has organized 64 visits to their respective villages and contacted more than 600 farmers. The teams also conducted 64 Interface meetings/*Goshthies* in which more than 600 farmers participated. Scientists also provided 27 mobile based agro advisories to farmers of these villages. Scientists also created awareness about various agricultural aspects to more than 600 farmers.

Table 1: Activities organized by Dr. YSPUH&F Solan during 2019-20

S.No	Name of the activity	No. of activities conducted	No. of farmers participated & benefitted
1.	Visit to village by teams	64	638
2.	Interface meeting/ *Goshthies*	64	638
3.	Training organized	64	638
4.	Mobile based advisories (No.)	27	27
5.	Awareness created	64	638

Awareness about Numerous Agricultural Aspects

2. Guru Angad Dev Veterinary and Animal Sciences University (GADVASU), Ludhiana (Punjab)

No. of teams formed

GADVASU, Ludhiana has formed three teams of scientists comprising 5 scientists and one coordinator in each team.

No. Of villages selected

Teams of scientists have selected 6 villages, which covers one district of Punjab. Bench mark survey of six villages was completed during 2019-20.

Progress of the Institute/SAU

Total no. of team of scientists	Total no. of scientists	No. of villages	No. of blocks	No. of districts	Bench mark survey conducted (no. of villages)
3	17	6	5	3	6

Activities Undertaken

Teams of scientists have organized 69 visits to their selected villages and contacted 213 farmers. The teams also conducted 7 Interface meetings/ *Gosthies* in which 132 farmers participated. There were 279 demonstrations laid out on agricultural technologies by scientists at 110.2 Ha farmers' field. Scientists conducted 18 training camps for 364 farmers. Mobile based 74 agro based advisories were sent to farmers of these villages. Scientific literature developed on various farming aspects were given to 2748 farmers. Scientists also created awareness about various agricultural aspects to 521 farmers.

Table 2: Activities organized by GADVASU Ludhiana under MGMG

S.No	Name of the activity	No. of activities conducted	No. of farmers participated & benefitted
1.	Visit to village by teams	69	213
2.	Interface meeting/ *Goshthies*	7	132

3.	Training organized	18	364
4.	Demonstrations conducted (ha)	110.2	154
5.	Mobile based advisories (No.)	74	4220
6.	Literature support provided	23	2748
7.	Awareness created	24	521
8.	Linkages developed with other agencies (No.)	34	815

During 2019-20, GADVASU scientists also provided more than 1 quintal seeds to 15 farmers and 2 quintals fertilizers to 12 farmers as presented in Table 3.

Table 3: Input support provided

S. No.	Name of input	Quantity (q)/No.	Area (ha)	No. of farmers benefitted
1.	Seeds (q)	1.18	5.2	15
2.	Fertilizers (q)	2.0	4.4	12


Training Camps

3. Chaudhary Sarwan Kumar Himachal Pradesh Krishi Vishvavidyalaya (CSKHPKV), Palampur (H.P)

No. of teams formed

CSKHPKV has formed eleven multidisciplinary teams of 41 scientists. Teams consist of 2-5 scientists including one coordinator.

No. of villages selected

These teams of scientists have selected 18 villages, which covers 12 development blocks and eight districts of Himachal Pradesh. Bench mark survey of 13 villages was completed.

Progress of the Institute

Total no. of team of scientists	Total no. of scientists	No. of villages	No. of blocks	No. of districts	Bench mark survey conducted (no. of villages)
11	41	18	12	8	13

Activities Undertaken

Team of scientists has organized 178 visits to their selected villages and contacted 2719 farmers. The teams also conducted 69 Interface meetings/ *Gosthies* in which 2201 farmers participated. There were 42 demonstrations laid out on agricultural technologies by scientists at 107.71 ha farmers' field. Scientists conducted 65 training camps for 1489 farmers. Mobile based 132 agro based advisories were sent to farmers of these villages. Scientific literature developed on various farming aspects were given to more than 1100 farmers. Scientists also created awareness about various agricultural aspects to 2141 farmers.

Table 4: Activities organized by CSKHPKV, Palampur during 2019-20

S.No	Name of the activity	No. of activities conducted	No. of farmers participated & benefitted
1.	Visit to village by teams	178	2719
2.	Interface meeting/ *Goshthies*	69	2201
3.	Training organized	65	1489
4.	Demonstrations conducted (ha)	107.71	1087
5.	Mobile based advisories (No.)	132	86623
6.	Literature support provided	30	1125
7.	Awareness created	62	2141
8.	Linkages developed with other agencies (No.)	34	2576

CSKHPKV scientists also provided critical inputs for conducting demonstrations at farmers' field besides regular technical advice during farmers-scientist interface. During 2019-20, scientists provided more than 120 quintals seeds to 391 farmers, approximately 6950 no. of planting materials to 116 farmers and 0.10 quintals fertilizers to 22 farmers as presented in Table 5.

Table 5: Input support provided

S. No.	Name of input	Quantity (q)/No.	Area (ha)	No. of farmers benefitted
1.	Seeds (q)	126.87	184.95	391
2.	Planting material (No.)	6950	1.6	116
3.	Fertilizers (q)	0.10	0.24	22

Digital & On-Farm Demonstration

4. G.B. Pant University of Agriculture & Technology (GBPUA&T), Pantnagar (Uttarakhand)

No. of teams formed

GBPUA&T has formed 27 multidisciplinary teams of 98 scientists. Each team consists of four scientists including one coordinator.

No. of villages selected

Each team of scientists has selected five villages and a total of 135 villages were selected all the 27 teams of scientists.

Progress of the Institute/SAU

Total no. of team of scientists	Total no. of scientists	No. of villages	No. of blocks	No. of districts	Bench mark survey conducted (No. of villages)
27	98	135	7	1	135

Activities undertaken

Teams of scientists of GBPUA&T has organized 44 visits to their respective villages and contacted 661 farmers. The teams also conducted 41 Interface meetings/*Gosthies* in which 650 farmers participated. Scientists conducted 03 training camps for 95 farmers. The team also one demonstration conducted in which 30 farmers participated. Scientists also provided 158 mobile based agro advisories to farmers of these villages. Scientific literature developed on various aspects also provided to 255 farmers. Scientists also created awareness about various agricultural aspects to 100 farmers.

Table 6: Activities organized by GBPUA&T Pantnagar during 2019-20

S.No	Name of the activity	No. of activities conducted	No. of farmers participated & benefitted
1.	Visit to village by teams	44	661

2.	Interface meeting/ *Goshthies*	41	650
3.	Training organized	3	95
4.	Demonstrations conducted (ha)	1	30
5.	Mobile based advisories (No.)	158	158
6.	Literature support provided	255	255
7.	Awareness created	65	1601
8.	Linkages developed with other agencies (No.)	8	100

Interface Meetings Organized

5. Punjab Agricultural University (PAU), Ludhiana (Punjab)

No. of teams formed

PAU, Ludhiana has formed 24 teams of scientists comprising 56 scientists including one coordinator in each team.

No. of villages selected

Teams of scientists have selected 50 villages, which covers 10 districts of Punjab. Bench mark survey of 45 villages was completed.

Progress of the Institute/SAU

Total no. of team of scientists	Total no. of scientists	No. of villages	No. of blocks	No. of districts	Bench mark survey conducted (no. of villages)
24	56	50	29	10	45

Activities Undertaken

Teams of scientists have organized 285 visits to their selected villages and contacted 6156 farmers. The teams also conducted 128 Interface meetings/ *Goshthies* in which 3255 farmers participated. There were demonstrations laid out on agricultural technologies by scientists at 206.71 ha farmers' field. Scientists conducted 195 training camps for 3557 farmers. Mobile based 806 agro based advisories were sent to farmers of these villages. Scientific literature developed on various farming aspects were given to 14097 farmers. Scientists also created

awareness about various agricultural aspects to 11630 farmers.

Table 7: Activities organized by PAU Ludhiana during 2019-20

S.No	Name of the activity	No. of activities conducted	No. of farmers participated & benefitted
1.	Visit to village by teams	385	6156
2.	Interface meeting/ *Goshthies*	128	3255
3.	Training organized	195	3557
4.	Demonstrations conducted (ha)	206.71	1150
5.	Mobile based advisories (No.)	806	16504
6.	Literature support provided	115	14097
7.	Awareness created	143	11630
8.	Linkages developed with other agencies (No.)	55	3314

During 2019-20, PAU provided more than 5200 quintals seeds to 1445 farmers and approximately 18410 no. of planting materials to 870 farmers as presented in Table 8.

Table 8: Input support provided

S. No.	Name of input	Quantity (q)/No.	No. of farmers benefitted
1.	Seeds (q)	5259.5	1445
2.	Planting material (No.)	18410	870



Discussions on New Agricultural Technologies & Features

6. Shere-E-Kashmir University of Agricultural Sciences & Technology (SKUAST), Kashmir (J&K)

No. of teams formed

SKUAST-K has formed three multidisciplinary teams of 15 scientists. Each team consists of

5 scientists including one coordinator.

No. of villages selected

A total of 15 villages were selected by the scientists. Bench mark survey of all the selected villages was completed during 2019-2020.

Progress of the SAU

Total no. of team of scientists	Total no. of scientists	No. of villages	No. of blocks	No. of districts	Bench mark survey conducted (no. of villages)
3	15	15	4	3	15

Activities Undertaken

Team of scientists has organized 25 visits to their selected villages and contacted 225 farmers. The teams also conducted 04 Interface meetings/ *Gosthies* in which 243 farmers participated. The team also two demonstrations conducted in which 75 farmers participated. Scientists conducted six training camps for 199 farmers. Mobile based 100 agro based advisories were sent to farmers of these villages. Scientific literature developed on various farming aspects were given to 600 farmers. Scientists also created awareness about various agricultural aspects to 275 farmers.

Table 9: Activities organized by SKAUST Kashmir during 2019-20

S.No	Name of the activity	No. of activities conducted	No. of farmers participated & benefitted
1.	Visit to village by teams	25	225
2.	Interface meeting/ *Goshthies*	04	243
3.	Training organized	06	199
4.	Demonstrations conducted (ha)	02	75
5.	Mobile based advisories (No.)	100	1238
6.	Literature support provided	600	600
7.	Awareness created	15	275
8.	Linkages developed with other agencies (No.)	05	250

During 2019-2020, SKUAST-K scientists also provided 25.4 quintals seed to 250 farmers as presented in Table 10.

Table 10: Input support provided

S. No.	Name of input	Quantity (q)/No.	No. of farmers benefitted
1.	Seeds (q)	25.4	250

SKUAST-K conducts field day on poultry

SRINAGAR: SKUAST-K on Wednesday conducted a field day on poultry under 'Mera Gaon Mera Gaurav' programme at village Busserhugh, Ganderbal on Wednesday. The programme was supported by ICAR-Poultry Seed Project, Division of LPM.

The theme of programme was "Profitable Backyard Poultry Production". About 50 farmers who rear backyard poultry participated in the day-long programme, an official note read.

According to the said note, Professor Azmat Alam Khan, Principal Investigator, Poultry Seed Project appraised the farmers about importance of backyard poultry farming and measures to be adopted for ensuring health and well being of birds.

The farmers who are rearing Vanaraja and Srinidhi birds provided by the university expressed satisfaction about the quality of the germplasm, the note read.

Various queries raised by the farmers were answered by the experts and poultry medicine (mineral mixture/tonics) was distributed free-of-cost among the farmers, it read.

Poultry Judging Competition was also held. A Vanaraja cock owned by Furkan Ahmad was judged the best cock and the owner was awarded, it added.

Field Day on Poultry

5. CASE STUDIES

Promotion of Oyster Mushroom cultivation in Shalumana Village in District Solan (H.P.)

Background Information/Situation analysis: The village is located near to ICAR-DMR, Solan and to encourage mushroom cultivation in the vicinity an initiative was taken to popularize mushroom cultivation by providing free spawn to selected farm women. One of the progressive farm women Smt.Santosh Sharma started cultivating Oyster mushroom under the technical guidance and support of ICAR-DMR, Scientists.

Technological interventions (Support provided, Technology, Implementation and Performance): In order to enhance the farm income of selected farm women ICAR-DMR, Solan provided the technology of seasonal cultivation of Oyster mushroom suitable to this area by providing free of cost spawn to Mrs.Santosh Sharma. She started the venture initially with 20 bags of Oyster Mushroom. She earned a very good amount of Rs.850.00 within a short span of 25 days she is now cultivating 10 bags daily and earning Rs.700-1000/- daily. Her Oyster cultivation motivated other farmwomen and unemployed youths of the area to grow Oyster mushroom in the Shalumana village.

Innovative extension methods used: Practical field demonstration

Impact/Spread/Benefits/Success derived: The farmers appreciated the extra income generated from mushroom production and were of the opinion that it will increase the additional farm income and tackle the problem of mal-nutrition.

Field Demonstration of Mushroom

Lessons Learned: If technical guidance is provided on the spot then many more farmers are interested to undertake mushroom cultivation.

Additional information (If any): Farmers were also interested to cultivate other medicinal mushrooms seasonally.

Contribution: B.L. Attri, AnupamBarh and Manoj Nath
ICAR-Directorate of Mushroom Research, Chambaghat (DMR), Solan (H.P.)

Water Harvesting through Locally made Block covered LDPE Polytanks Making a Difference

Background Information/Situation analysis: Water is a critical and limiting factor in post-monsoon season in the hills of Uttarakhand where rainfed agriculture is predominant. Besides this, the rainfall variability and early or mid-season droughts during crop season caused either poor performance of the rainfed crops or even failure of Rabi crops. The farmers of Naula and Salla Rautela villages, Hawalbagh block, Almora district were unable to take off-season vegetables and irrigate rabi crops due to lack of water.

Technological interventions (Support provided, Technology, Implementation and Performance): The ICAR-Vivekananda Parvatiya Krishi Anusandhan Sansthan, Almora adopted Naula and Salla Rautela villages in 2015 under the Mera Gaon Mera Gaurav programme of the Prime Minister of India. Different technologies developed by the institute including water harvesting through locally made block covered polytank, improved varieties and production technologies were demonstrated at farmer's fields in these villages. During the PRA survey and focused group discussions (FGDs), water harvesting in LDPE polytanks for efficient utilization of rain/spring water was identified as a suitable intervention and climate resilient technology to enhance productivity, income and livelihood of the farmers in the villages. Five farmers volunteered to adopt the LDPE polytank water harvesting technology and constructed locally made block covered polytanks for rain/spring water harvesting. The run off as well as discharge from springs/small streams was harvested and efficiently used as supplemental irrigation to manage mid-season drought as well as to cultivate off-season vegetables.

Further, they also came forward to adopt the same technology for fish rearing. The capacity of polytanks varied from 50 to 100 cu m. It was estimated based on discharge of water source that 0.75 ha area can be irrigated through flood system and if farmers adopt drip system than 1.25 ha area can be irrigated. Before the intervention, the farmers used to take up only mixed cropping mostly during Kharif (fingermillet/barnyard millet+horsegram+black soybean) and rarely during Rabi season (wheat+lentil/toria/mustard) and leaving most of their fields fallow during rabi season whenever rains failed. Even in the mixed cropping of crops, mid-season droughts used to affect the yields. It used to result into poor yields and often failure of Rabi crops also. Due to availability of water in the polytanks, the farmers diversified the existing cropping pattern to line sowing, adoption of improved varieties, off-season cultivation and fish rearing. They also adopted the gravity based micro-irrigation system. Efficient use of polytank water to *Kharif* crops during dry spells and pre-sowing irrigation to Rabi crops and efficient micro-irrigation method (drip) to off-season vegetables made agriculture a profitable venture for them.

Innovative extension methods used: Farmer's participatory approach.

Linkage developed through Govt. sponsored schemes (list of schemes and no. of farmers benefited in each scheme): 10 beneficiary farmers

Impact/Spread/Benefits/Success derived: The income from different components (100 sq m area) showed that farmers earned Rs. 1,654/- from agriculture under rainfed conditions (Rs/100 sq m) as compared to income of Rs. 3,110/- from agriculture using harvested water (Rs/100 sq m). Fingerlings have been introduced @ 500 fingerlings/100 cu m water. It is expected that 300 kg/100 cu m yield will be obtained in two years and income will be around 60,000 per 100 cu m.

Lessons Learned: Low cost polytanks may damage or their life may be very short. Therefore, it was learnt that poly-cement tanks having long life may be a good replacement of these polytanks.


Cement Tanks Repaired at Farmer's Field


Poly-Lined Tank with Pisciculture at Farmer's Field

Team of scientists involved with contact details: Kushagra Joshi, S.C. Panday, Sher Singh, Dibakar Mahanta, Dr. Shyam Nath, Hanuman Ram and Mr. Jeevan B
ICAR-Vivekananda Parvatiya Krishi Anusandhan Sansthan (VPKAS), Almora (Uttarakhand)

Participatory Water Resource Development through Spring Water Tapping– A Relief to the Tribal Community in the Nilgiris

Background Information/Situation analysis: Nilgiri district of Tamil Nadu is having considerable number of tribal populations which include primitive tribes like, Thodas, Baniyas, Irulas, Kurumbas, Kaatunaickans and Kothas. Among them, Kothas and Thodas are living in higher elevations and the rest of the tribes are living middle and lower elevations. Some of the tribes are living in interior villages in the forest and they have limited access to the developmental activities. Even though the Nilgiris receives sufficient rainfall, these tribes often face crisis for drinking water as wells as for irrigation due to lack of knowledge in rainwater harvesting and storage in this tribal regions. Women and children of these tribes, particularly, Irulas and Kurumbas are walking 4 to 5 km through thick forest to fetch water for drinking which forces threat to their life because of the frequent trespassing of wild animals like elephants and boar. They often collect unhygienic water from nearby ditches for drinking purpose. Also, these tribes recently started cultivating vegetables and small scale tea garden for their livelihood. Lack of water for irrigation and erratic rainfall hinders the successful cultivation. To harness the water, a participatory water resource development through spring water tapping was taken up by the ICAR- IISWC, Udhgamandalam centre under Tribal Sub Plan, which brought a big relief to the tribal farmers and reduced the drudgery particularly for women and children.

Technological interventions (Support provided, Technology, Implementation and Performance): Under this intervention, ICAR-IISWC, RC, Udhgamandalam have succeeded in tapping seven springs water involving 5000 meter hose pipe and 8 PVC tanks at a cost of Rs.3,30700 (Rupees three lacs thirty thousand seven hundred only) to provide water for domestic and irrigation purpose. Since these springs are perennial, it supplies water for both irrigation and drinking purposes in Pamparai, Selari, Sedikal, Kurukundha, KilKatapatu and Kadasholai villages benefiting 75 tribal families in these six MGMG villages. This intervention has brought an end to the ordeal of bringing drinking water from far off places by tribal women and children.

Innovative extension methods used: Two collection pits, one for the villagers and other for the wild animal use to safe guard biodiversity, were taken up near every spring water source through novel extension approach involving local Village level institution like Self help group and Poverty Reduction Committee (VPRC) in execution and maintenance. From this collection pits, conveyance pipes were laid out in underground to the individual hamlets by the involvement of village youths.

Linkage developed through Govt. sponsored schemes (list of schemes and no. of farmers benefitted in each scheme):

- Department of Horticulture Scheme: National Horticultural Mission for providing tea

seedling; Number of beneficiaries: 160

- Organic farming scheme of Department of Horticulture: 50 farmers

Impact/Spread/Benefits/Success derived: This intervention was a great success which not only serves for drinking water facility to 75 families in six villages and reduces the drudgery of women and children, but also serves as a irrigation source for 12 hectares of agricultural field in the tribal areas. Through this intervention tribal farmers could taken up two vegetables crops like carrot, beans, radish and potato in a year which improved their livelihood.

Women's and Children Walk through Forest to Fetch Water

Shri. C. Padrasamy, District Forest Officer Inaugurating the Drinking Water Facility created through Spring Water Tapping

Lessons Learned: Success rate is higher when needed based interventions are undertaken through participatory approach.

Contribution: Lekh Chand, K. Kannan, P. Sundarambal and V. Selvi

Visitors to the Site: Joint Director of Horticulture, The Director, Tribal Research Centre and Officials from Line Department and NGO

ICAR- IISWC, Research Centre, Udhagamandalam (T.N)

ICA R - Indian Institute of Soil & Water Conservation (IISWC), Dehradun (Uttarakhand)

Demonstration of Bitter Gourd Cultivation in Telly Method

Background Information/Situation analysis: During summer month (February to July) farmers growing Bitter gourd as runner in without any support/ stacking. This results in drying of shoots and fruit due to scorching heat and farmers accruing losses.

Technological interventions (Support provided, Technology, Implementation and Performance): Provided HYV of Bitter gourd seed. Demonstrated the telly method by raising poles and inter connecting poles with plastic ropes making a web structure 1.5 mts above ground level for easy spread of the growing branches. Irrigation requirement is ensured by developing silpauline lined pond and water derived from stream originating 1 km from pond on hillock and bringing it through HDPE pipes on zero conveyance loss.

Innovative extension methods used: Replacing the traditional seeds, Lining of existing dried and defunct pond, Laying of HDPE pipes on earthen channel way which farmers were using as conveyance channel.

Linkage developed through Govt. sponsored schemes (list of schemes and no. of farmers benefitted in each scheme): TSP-2019-20 and number of farmer's benefited-30.

TSP- KPT-2019-20- Telly Method of Bitter Gourd Cultivation, Farmers on Exposure Visit, First Harvest of Bitter Gourd and Silpauline Pond with Harvested Water

Impact/Spread/Benefits/Success derived: Farmers from far and near came here for exposure visit and impressed with the performance and assured to adopt the same in their field. Group of 30 farmers harvested 30 tonnes of bitter gourd from 1.5 ha within a span of 4 months.

Lessons Learned: Farmers reap the benefits beyond their expectation.

Additional information (If any): Persuasion, Motivation , Technological guidance and market linkages are motivating forces in bring about changes in shift from production led agriculture to market led agriculture leading to change of face of rural agriculture.

Contribution: Lekh Chand and M. Madhu
ICAR- IISWC, Research Centre, Koraput (Orissa)
ICA R - Indian Institute of Soil & Water Conservation, Dehradun (Uttarakhand)

Integrated Fish-cum-Horticulture using Polytanks: A Climate Resilient Practice in Mid Hill Region

Background Information/Situation analysis: The selected site, Doonagiri, Almora (2220 msl, 79^{o}29'604" E, 29^{o}48'5"N) lies in the drainage of river Kosi, which originates from Pandukhola. Rawat (2007) reported the 184.41 kms shrinkage of the catchment of the Kosi in 40 years at the rate of 4.5 kms /year due to down fall of water table in the underground aquifer. The originating point of the river has been shifted down about 200 mts (1997-2004). This was a snow falling area, but during last decade, snow fall has reduced drastically. Therefore, the selected site is prone to climate change with increasing temperature and draught like situation. In this situation, horticultural practice is subject to shifting in terms of production and suitability of varieties. But, changing scenario is favorable for the polyculture of the exotic carp.

Technological interventions (Support provided, Technology, Implementation and Performance): Exotic carps; Silver carp (*Hypophthalmichthys molitrix*), Grass carp (*Ctenopharyngodon idella*), Common carp (*Cyprinus carpio*) and minor carp (*Labeo dyocheilus / Bangana dero*)has been tested in 10 polytanks and seed was stocked @2.5-3.0 nos/m^3 with species ratio 20:40:20:20 respectively. Fish were fed with rice polish and mustard oil cake coupled with fresh *azolla* @ 3% of their body weight daily basis. Table sized fish were produced in 12 months after stocking of stunt yearlings of the size 30-40 gm. 60-70 kg/100m^2 production was achieved with this technique in mid hill conditions. Poly-lined rainwater harvesting tanks are suitable for this climate resilient practice in mid hills where scarcity and low water temperature are bottleneck in crop production. The overflow of the water was used for irrigating radish and coriander crops. Though, the growth of grass carp is comparatively higher but minor carp showed better climate resilience in terms of temperature tolerance for extremely lower and higher thermal regime. Minor carp is also helpful to keep the pond clean due to its browsing feeding habit mainly feed on periphyton.

Innovative extension methods used: Result demonstration was applied for the dissemination of technology. A cluster approach having group discussion with adopted farmers was mainly applied for technical intervension.

Linkage developed through Govt. sponsored schemes (list of schemes and no. of farmers benefitted in each scheme): National Mission for Sustaining the Himalayan Eco-System (NMSHE), DST, Govt. of India sponsored scheme 16 farmers. ICAR-VPKAS, Almora for Horticultural crops-16 farmers.

Impact/Spread/Benefits/Success derived: Previously selected site was experienced for snow falling and low thermal regime, not suitable for fish farming. In the changing scenario temperature increases with drought like condition and limited the horticulture practice due to water scarcity. Study was conducted with or without integration of fish farming and horticulture which resulted for increasing production of horticulture and additional income by fish production. Polythene lined fish pond is the nucleus of climate resilient horticulture practice in this drought prone area.


FishFarming in Polytanks

Lessons Learned: Polytank is a suitable structure for the polyculture of the exotic carp in mid hill, which favours the growth of the fish keeping the pond water warmer. Pond water is a buffer stock, which also can be used for horticulture purpose. A small farm pond in the form of polytank and practice of fish farming is a climate resilient approach in the mid altitudes.

Additional information (If any): Economics of Field Experimentation: with and without integration

	With integration	**Without integration**
Crop duration	12 months	12 months
Area	Pond-100m^2 Horticulture Plot- 200m^2	Horticulture Plot- 300m^2
Average yield	Fish-70kg Radish-400kg Radish seed-5kg Coriander-50kg	Radish-450kg Radish seed-4kg Coriander-45kg
Sale price (Rs. /kg)	Fish- Rs. 150 Radish-20 Radish seed-1200 Coriander-120	Radish-20 Radish seed-1200 Coriander-120
Gross return	Rs. 30500	Rs. 19200
Production cost	Rs. 12500/-	Rs. 9500/-
Net return	Rs. 18000/300m^2	Rs. 9700/300m^2
Crop rotation	2 crops of Radish- Coriander and fish in pond	2 crops of Radish- Coriander

Contribution: R. S. Haldar, N. N. Pandey**,** S. Ali
ICAR-Directorate of Coldwater Fisheries Research (DCFR), Anusandhan Bhawan, Industrial Area, Bhimtal, Distt.-Nainital (Uttarakhand)

Annexure-I

List of ICAR Institutes and SAUs along with Nodal Officer

S. No.	Name of Institute/University	Name	Designation	Email Id	Contact No.
1	ICAR-CIPHET, Ludhiana	Dr. Sandeep Mann	Principal Scientist	sandeep_mann76@yahoo.com	9463043396
2	ICAR-CITH, Srinagar	Dr Om Chand Sharma	Principal Scientist	ommandi@yahoo.com	9419243119
3	ICAR-CPRI, Shimla	Dr. N.K.Pandey	Head	nkpcpri@gmail.com	9418276362
4	ICAR-CPRS, Jalandhar	Dr. Sunil Gulati	Scientist	Sunil.Gulati@icar.gov.in	98554-71877
5	ICAR-IIMR, Ludhiana	Dr..Shanakr Lal Jat	Scientist	sl.jat@icar.gov.in; sliari@gmail.com	9953009711
6	ICAR-DCFR, Bhimtal	Dr. R. S. Haldar	Asstt. Chief Technical Officer	haldardcfr@gmail.com rs.haldar@icar.gov.in	8126435135
7	ICAR-DMR, Solan	Dr. Yogesh Gautam	Senior Scientist	ygautamdmr@gmail.com	9418026157
8	ICAR-IISWC, Dehradun	Dr. Lekh Chand	Senior Scientist	lekhchand1@gmail.com	8755308844
9	ICAR-VPKAS, Almora	Dr. Kushagra Joshi	Scientist	kushagra.Joshi@icar.gov.in	7088227045
10	ICAR-ATARI, Ludhiana	Dr. (Mrs) Pragya Bhadauria	Scientist	bhadauria_pragya@yahoo.co.in	9877082852
11	Dr. YSPUH&F, Solan	Dr. Anil Sood	Principal Scientist	mgmguhf@gmail.com	9418452622
12	GADVASU, Ludhiana	Dr. Y. S. Jadoun	Assistant Professor	ysvet1203@gmail.com	81950-07335
13	CSK HPKV, Palampur	Dr..D. R. Chaudhary	Prof essor	drc_dee@rediffmail.com	8219452084
14	GBPUA&T, Pantnagar	Dr. Anil Kumar Sharma	Director of Extn. Edu.	direxteduqbp@gmail.com	05944 – 233336, 233811
15	PAU, Ludhiana	Dr. G.S. Buttar	Addl. Director of Extn. Edu.	adee1@pau.edu	0161-2401074
16	SKUAST, Kashmir	Prof (Dr.) Sheikh Muzaffar Ahmad	Associate Director Extension (Ag.)		9419038941

Annexure-II

List of Villages

1. ICAR-CIPHET Ludhiana

Name of the state	Name of district	Name of block	Name of villages
Punjab	Ludhiana	Ludhiana west	Issewal Malakpur Jhamat Ayali
Punjab	Ludhiana	Pratappur wala	Singapur
Punjab	Nawanshahr	Nawanshahr	Mahalon, Rahon
Punjab	Fazilka	Abohar	Bhawal Basi, Khera, Sucha Singh, Kalatibba (Chakra), Ramsra, Bhagu, Amarpura
Punjab	Firozepur	Makhu	Mehrana

2. ICAR-CITH Srinagar

Name of the state	Name of district	Name of block	Name of villages
Uttarakhand	Nainital	Dhari	Sunkiya

3. ICAR-CPRI Shimla

Name of the state	Name of district	Name of block	Name of villages
Himachal Pradesh	Shimla	Theog	Talai, Dhaleu (Dehna), Bhani, Jethai, Katudi, Chara, Domehar

4. ICAR-CPRS Jalandhar

Name of the state	Name of district	Name of block	Name of villages
Punjab	Jalandhar	Kartarpur	Chitti, Lallian Kalan, Rampur Lallian, Singhan, Lallian Khurd

5. ICAR-IIMR Ludhiana

Name of the state	Name of district	Name of block	Name of villages
Punjab	Hoshiarpur, S.B.S. Nagar	Garhshankar, Balachaur	Chakguru, Simbhi, Dhamai, Samundra
Punjab	Hoshiarpur, S.B.S. Nagar	Garhshankar, Balachaur	Kot, Mera, Garhi_Mansowal, Kokowal Majari
Punjab	Hoshiarpur, S.B.S. Nagar	Garhshankar, Balachaur	Juneke, Burj Dara Singh, Burj Pohia, Booh
Punjab	Taran Tarna	Taran Taran	Pahlewal, Rampur, Birlon, Badesron, Kukran
Haryana	Sonipat	Rai	Jakhouli, Jhundpur, Jagdishpur, Pabesara, Toki, Savli, Aurangabad and Khurrampur
Telangana	RangaReddy district	Keshampet Mandal, Shamshabad Mandal	Burujugadda, Thanda, Kakunoor, Peddashapur
Bihar	Begusarai	Beerpur	Beerpur

6. ICAR-DCFR Bhimtal

Name of the state	Name of district	Name of block	Name of villages
Uttarakhand	Nainital	Bhimtal	Hari Nagar, Baheri Gaon, Barijala, Bohrakun, Alchaunna
Uttarakhand	Almora	Dwarahat, Hawalbagh, Salt	Jyurkafun, Todera, Dudhauli, Manan, Nail
Uttarakhand	U.S.Nagar	Sitarganj	Salmatta
Uttarakhand	Pithoragar	Munsyari	Sarmoli
Uttarakhand	Champawat	Champawat	Kathad, Chekuni Bora, Moradi, Mudyani Dodhpokhara, Khunari
Arunachal Pradesh	West Kameng, Lower Subansiri	Dirang, Ziro	Chug, Hari, Donglok, Changpa
Meghalaya	Ri-bhoi, East Khasi Hills, West Khasi Hills	Umsining, Phyhursll a,	Umsining, Pynhurslla, Laithrong, Myrang

			Laithrong, Myrang

7. ICAR-DMR Solan

Name of the state	Name of district	Name of block	Name of villages
Himachal Pradesh	Solan	Kandaghat	Anji Sunara, Wakhna, Rawali, Bhodhan, Kashmari, Garoo, Anji, Dharot, Jyon, Lahog (Katal), Pati Chabyar, Shalumna

8. ICAR- IISWC Dehradun

Name of the state	Name of district	Name of block	Name of villages
Uttarkhand	Dehradun	Raipur	Bhopalpani, Kalimati, Badasi, Soda Saroli, Soda Dwara
Uttarkhand	Dehradun	Kalsi	Jasau-Bhakro, Thateyo Damta, Bamrad
Uttarkhand	Dehradun	Kalsi	Udapata, Kuroli, Khatasa, Bhori, Sahiya
Uttarkhand	Dehradun	Kalsi	Badnu, Datnu, Maletha, Barad, Patan
Uttarkhand	Tehri Garhwal	Jaunpur	Mazhgaon, Kelwan, Maroda, Lamkande, Tegna
Uttarkhand	Dehradu	Kalsi	Phateu, Ichhla, Semalta, Pata, Kalsi-Johar
Uttarkhand	Dehradun Tehri Garhwal	Sahaspur Thatayur	Pawwala Soda, Shaspur, Swaran Dobri, Almas, Rotu ki beli
Uttarkhand	Dehradun	Raipur	Karligarh, Sahastradhar,
Uttarkhand	Dehradun	Vikasnagar	Majhara, Kheri Langha, Pasauli, Rudrapur Godariya
UP	Agra	Etmadpur	Nayabans, Garapur, Nagla Gangaram, Surehra, Chhirbari, Behrampur

UP	Agra	Fatehbad	GarhiUdairaj, Sarangpur, Bilpura, Manikpura, BasaiGurjar
Karnataka	Citradurga	Molakal muru	Hanumapura, Ramasagara, Maramanahalli, K. Veerapura and Netranahalli
Haryana	Panchkula	Kalka	Janauli, Khoi, Toka, Kotiya
HP	Solan	Dharampur	Kandiyala
MP	Datia	Datia	Sunar, Sitapur, Mahewa
Odisha	Koraput and Gajapati	Koraput, Semiligud a, Nadapur, Kotpad	Dayanidhiguda, Butruguda, Bagra, Kusumguda, Bondakatra, Banapadar, Jhadiguda, Mahadeiput, Sodrenga, Loborsing, Sinsigh
Tamil Nadu	The Nilgiris	Ooty	Kuruthukuli, Madithurai
Tamil Nadu	The Nilgiris	Kothagiri	Anthiarai, Kandipatti,
Tamil Nadu	Coimbatore	Karamad	Mettukkal, Kolikarai, K.Pudur Oomapalayam, Seenguli Senguttaiyur
Gujarat	Anand Kheda Vadodara Panchmahal	Anand Kheda, Vadodara, Pavaghar	Rajupura, Nanarampura, Ryka, Dodka, Navad

9. ICAR-VPKAS Almora

Name of the state	Name of district	Name of block	Name of villages
Uttarakhand	Almora	Hawalbagh	Naugaon, Latwalgaon, Raun, Daal, Doba
Uttarakhand	Almora	Dhauladevi	Bhagartola, Papgad, Silangi, Nainigoonth, Kadauri, Deengrigoonth
Uttarakhand	Almora	Hawalbagh	Naula, Balsa, Champa, Salla-Rautela, Shyahi Devi
Uttarakhand	Almora	Chaukhutiya	Pechuni, Baralgaon, Amsyari, Bisht Bakhali, Bakhli
Uttarakhand	Almora	Tarikhet	Tunaot, Tipola, Chaparh, Syalikhet

10. ICAR-ATARI Ludhiana

Name of the state	Name of district	Name of block	Name of villages

Punjab	Ludhiana	Samrala	Sehjomajra

11. Dr. YSPUH&F Solan

Name of the state	Name of district	Name of block	Name of villages
Himachal Pradesh	Solan	Solan	Barog, Dharot, Jaunaji, Parag, Kothon, Shamti, Chewa, Saproon, Anji, Basal, Seri, Mashiwar, SerBanera, Sanhol, NauniMajhgaon, Top-ki-ber, Dhangri, Shamrod, Salogra, Oachghat
Himachal Pradesh	Solan	Kandaghat	Hinner
Himachal Pradesh	Solan	Dharampur	Dharampur, GarkhalSanawar
Himachal Pradesh	Sirmaur	Pachhad	DaroDevaria, Mangarh, NainaTikkar, Darabli, KotlaPanjola, Chamenji, Narag, Dilman, Wasni
Himachal Pradesh	Sirmaur	Rajgarh	Karganoo

12. GADVASU Ludhiana

Name of the state	Name of district	Name of block	Name of villages
Punjab	Tarn Taran	Tarn Taran	Sohawa
Punjab	Tarn Taran	Patti	Thathiian Khurd
Punjab	SAS Nagar, Mohali	Kharar	Naggal Faizgarh
Punjab	SAS Nagar, Mohali	Majri	Mundho Sangtian
Punjab	Barnala	Barnala	Khudi Khurd and Uppali

13. CSK HPKV Palampur

Name of the state	Name of district	Name of block	Name of villages

Himachal Pradesh	Kangra	Baijnath	Sagoor
Himachal Pradesh	Bilaspur	Jhandutta	Bala
Himachal Pradesh	Hamirpur	Bhoranj	Jhinjhkari
Himachal Pradesh	Kangra	Jawali	Bagga,kuthera
Himachal Pradesh	Lahaul & Spiti	Udaipur	Namu
Himachal Pradesh	Kullu	Kullu	Chhoel Gadauri , Jia
Himachal Pradesh	Mandi	Karsog, Sundernagar and Gohar	Gothra, Gharot ,Palahuta and Dodhwan
Himachal Pradesh	Una	Una	Basal
Himachal Pradesh	Sirmaur	 Sangrah Paonta sahib	Kanshipur,Ajauli Khalakiyar,Kiyarta Piplati,kakog

14.GBPUA&T Pantnagar

Name of the state	Name of district	Name of block	Name of villages
	Udham Singh Nagar	Bajpur	Chanakpur, Kelabandvari, Haripura, Barhaini, Bheekampuri, Sarkada, Bajpurgaon, Harlalpur, Jagannathpur, Rampurasakar, Chakarpur, Hajeera, Shivpuri, Dhantara, Lakhanpur, Ganeshpur, Ramnagar, Bhavvanagala, Sarkadi and Rampurakaji
Uttarakhand	Udham Singh Nagar	Khatima	Bankatiya, Nadanna, Bhoodakishni, Kuvankheda, Bhudiyatharu, Nausar, Bhagchuri, Bandiya, Haldi, Majhola, Pahainiya, Saboura, Pratappur, Sadasadiya, Poornapur, Nagalatarai, Mundeli, Chanda, Gausikuan and Bhudai

Uttarakhand	Udham Singh Nagar	Sitarganj	Nakuliya, Turkatisaur, Tharutisaur, Bamanpuri, Sisauna, Bijati, Malpura, Gauntha, Govindpur, Karghatiya, Magarsada, Dohara, Pachpeda, Vidaura, Viriya, Balkheda, Sunkharikala, Matiha, Sinha Navadiya, Devkali
Uttarakhand	Udham Singh Nagar	Rudrapur	Azadnagar, Dopahariya, Bandiya, Pateri, Khamiya No.-4, Bakhpur, Gaughat, Sahdaura, Karthara, Bhanga, Saijana, Chhinki, Kuraiya, Kachchi Khamariya, Darau, Narayanpur, Anandpur, Rameshwarpur, Chukati, Inderpur, Matkota, Malsa, Faujimatkota, Bindukheda and Bhamraula

15. PAU Ludhiana

Name of the state	Name of district	Name of block	Name of villages
Punjab	Patiala	Nabha	Mehas, Ajnauda, Kansuha ,Kheri mania
Punjab	Patiala	Rajpura	Kheri Gandian
Punjab	Patiala	Patran	Ramgarh Duggal & Burar
Punjab	Patiala	Samana	Dhakrabba
Punjab	Sangrur	Sunam	Bigarwal, Maradkhera, Khadial
Punjab	Sangrur	Sangrur	Kanoi
Punjab	Kapurthala	Kapurthala	Bhagwanpur
Punjab	Kapurthala	SultanpurLodhi	Meripur
Punjab	Kapurthala	Dhilwan	MianiBakarpur
Punjab	Kapurthala	SultanpurLodhi	Swal, Boolpur
Punjab	Gurdaspur	Kalanaur	Bhangwan, Chhina Railwala
Punjab	Gurdaspur	Dera Baba Nanak	Masatkot, Fatupur
Punjab	Gurdaspur	Kahnuwan	Sallopur

Punjab	Gurdaspur	Dinanagar	Talibpur
Punjab	Gurdaspur	Gurdaspur	Pandori
Punjab	Bathinda	Bathinda	Bathwala
Punjab	Bathinda	Sangat	Kili Nihal Singh Wala Naruana, Deon, Bir
Punjab	Bathinda	Phool	Behman Bajak
Punjab	Bathinda	Talwandi Sabo	Mehraj
Punjab	Amritsar	Harsha Chinna	Talwandi Sabo
Punjab	Ludhiana	Samrala	Jagdev
Punjab	Muktsar	Malout	kalan
Punjab	Muktsar	Lambi	Sehjomajra
Punjab	Muktsar	Giddarbaha	RattaKhera
Punjab	Muktsar	Muktsar	Maan
Punjab	Moga	KotIse Khan	Gurri sangar
Punjab	Moga	Moga I	Goneana
Punjab	Moga	Moga II	Fatehgarh Korotana
Punjab	Ferozepur	Ferozepur	Jhandewala, Kokri Kalan, Purane Wala Nidhan Wala, Saffuwala, Gammewala, Dheera Patra, Wahka Mour, Changali, Jadid, Jhok Harihar, Bukan khan

16. SKAUST Kashmir

Name of the UT	Name of district	Name of block	Name of villages

J&K	Anantnag	Doru Shahabad, Breng	Kreri, Nowpora, Bragam, Larkipora, Sagam
J&K	Baramulla	Rafiabad	Malgonipora, Behrampora, Drusoo, Marazigund, Watergam
J&K	Srinagar	Hazratbal	Tailbal, Gasoo, Batpora, Burzahama, Chatterhama