RESULTS - FRAMEWORK DOCUMENT (RFD)

(2011-2012)

DIRECTORATE OF MUSHROOM RESEARCH

Chmbaghat, Solan-173213, Himachal Pradesh
Website: http://www.nrcmushroom.org

Section 1: Vision, Mission, Objectives and Functions

Vision

To bring about mushroom revolution in the country and to promote eco-region specific integrated farming for economic and ecological sustainability.

Mission

- To popularize mushrooms in all parts of the country with long-term sustainability by way of integrated mushroom farming - recycling of agro-wastes through mushroom production and use of spent mushroom substrates as organic manure, animal feed and fuel
- To generate technologies for ameliorating poverty through self-employment and to ensure socio-economic as well as nutritional security

Objectives

- Collection, conservation, characterization and bio-prospecting of indigenous wild mushroom flora for genetic enhancement, protection under Intellectual Properties (IP) and for diversification of mushroom portfolio in the country
- Functions
- To achieve high productivity and production of mushrooms by way of development of high yielding varieties with inherent capabilities for tolerance to biotic and abiotic stresses
- Development and refinement in production technologies of different mushrooms including disease control and development of low cost machinery
- Development of technologies for utilization of spent mushroom substrate
- Development of technologies for value addition and processing of mushrooms

Development of print, audio, video material and ICT based model and other technologies for TOT/ knowledge dissemination

- To act as the Centre of academic excellence and repository of mushroom germplasm and information.
- To coordinate network research on location specific problems of national importance, to achieve higher production and productivity.
- To promote human resource development and transfer of technology and to provide technical support to the mushroom industry

Section 2: Inter Se Priorities among Key Objectives, Success indicators and Targets

Objective	Weight	Action	Success indicator	Unit	Weight	Target/Criteria Value				
						Excellent	Very good	Good	Fair	Poor
						100%	90%	80%	70%	60%
1: Collection, conservation, characterization and bio-prospecting of indigenous wild mushroom flora for genetic enhancement, protection under Intellectual Properties (IP) and for diversification of mushroom portfolio in the country	12	Survey of unexplored areas for mushroom/germplasm collection	Number of wild mushroom collected	Number	5	180	160	144	126	104
			Number of mushroom identified	Number	4	60	54	48	42	36
			Number of mushroom brought in pure culture	Number	3	80	70	65	55	48
2: To achieve high productivity and production of mushrooms by way of development of high yielding varieties with inherent capabilities for tolerance to biotic and abiotic stresses	18	To develop high yielding/disease resistant varieties of different mushrooms	Evaluation/Development of one hybrid strain of oyster mushroom	Number	6	2	1	0	0	0
			Three high yielding single spore selection of white button mushroom will be selected for AICRP trials	Number	8	3	2	1	0	0
			Evaluation/Development of one white strain of paddy straw mushroom	Number	4	2	1	0	0	0
3: Development and refinement in production technologies of different mushrooms including disease control and development of low cost machinery	30	Development/refinement of farmer-friendly cultivation technologies of different mushrooms and to develop suitable control measures for different diseases	Newly developed oyster mushroom cultivation technique confirmed	Date	2	31.12.11	31.01.12	28.02.12	31.03.12	--
			New composting technique confirmed	Date	2	31.07.11	30.09.11	30.11.11	31.01.12	31.03.12
			Utilized unconventional agri/industrial wastes for compost production	Number	4	3	2	1	0	0
			Improvement in cultural practices of white button mushroom	Date	5	29.02.12	15.03.12	31.03.12	-	-
			Suitable strains for paddy straw cultivation selected	Date	3	31.10.11	31.12.11	31.03.12	-	-
			Improvement in cultivation technology for paddy straw mushroom	Date	3	31.10.11	31.12.11	31.03.12	-	-
			Refinement in substrate preparation for Shitake mushroom cultivation	Date	3	30.09.11	31.10.11	30.11.11	31.12.11	31.01.12

			Number of Surveys conducted for pests and pathogens.	Number	3	6	5	4	3	2
			Development of primers for wet bubble and yellow mould detection	Date	5	30.09.11	31.10.11	30.11.11	31.12.11	31.01.12
4: Development of technologies for utilization of spent mushroom substrate	5	Utilization of spent mushroom substrate as manure	Vermi compost prepared by SMS	Date	5	31.12.11	31.01.12	15.02.12	28.02.12	15.03.12
5: Development of technologies for value addition and processing of mushrooms	6	Development of value added products and post harvest technology	Number of mushroom products developed	Number	6	5	4	3	2	1
6: Development of print, audio, video material and ICT based model and other technologies for TOT/ knowledge dissemination	18	Development of an expert system on mushroom cultivation	Collection and compilation of data on mushroom crop with respect to its cultural practices, varieties, diseases and pests	Date	2	15.06.11	15.07.11	15.08.11	15.09.11	15.10.11
			Develop a knowledge base on the data collected	Date	3	15.11.11	15.12.11	15.01.12	15.02.12	15.03.12
			Development and designing of an expert system on mushroom cultivation	Date	5	15.02.12	15.03.12	31.03.12	-	-
		Conduct & coordination of training programmes for farmers, SMS and entrepreneurs	Trainings on mushroom cultivation Technology conducted	Number	5	5	4	3	2	1
		Organization/ participation in mushroom mela, exhibitions for the promotion of mushroom	Numbers of mushroom mela/exhibitions organized and participated.	Number	3	4	3	2	1	-
* Efficient functioning of RFD system	11	Timely submission of RFD for 2011-12	On time submission	Date	2	June 10, 2011	June 14, 2011	June 16, 2011	June 20, 2011	June 22, 2011
		Timely submission of results for 2011-12	On time submission	Date	1	May 1, 2012	May 3, 2012	May 4, 2012	May 5, 2012	May 6, 2012
		Finalize a Strategic Plan for next five year	Finalize the Strategic Plan for next 5 years	Date	2	Dec 10, 2011	Dec 15, 2011	Dec 20, 2011	Dec 24, 2011	Dec 31, 2011

		Identify potential areas of corruption related to organization activities and develop an action plan to mitigate them.	Finalize an action plan to mitigate potential areas of corruption	Date	2	Dec 10, 2011	Dec 15, 2011	Dec 20, 2011	Dec 24, 2011	Dec 31, 2011
		Implementation of Sevottam	Create a Sevottam compliant system to implement, monitor and review Citizen's Charter	Date	2	Dec. 10, 11	Dec 15, 2011	Dec 20, 2011	Dec 24, 2011	Dec 31, 2011
			Create a Sevottam complilant system to redress and monitor public Grievances	Date	2	Dec 10, 2011	Dec 15, 2011	Dec 20, 2011	Dec 24, 2011	Dec 31, 2011

* Mandatory Indicator

Section 3: Trend Values of the Success indicators

Objective	Action	Success Indicators	Unit	Actual Value for FY 09/10	Actual Value for FY 10/11	Target Value for FY 11/12	Projected Value for FY 12/13	Project Value for FY 13/14
1: Collection, conservation, characterization and bio-prospecting of indigenous wild mushroom flora for genetic enhancement, protection under Intellectual Properties (IP) and for diversification of mushroom portfolio in the country	Survey of unexplored areas for mushroom collection	Number of wild mushroom collected	Number	217	154	160	200	220
		Number of mushroom identified	Number	80	75	54	80	85
		Number of mushroom brought in pure culture	Number	30	25	70	90	100
2: To achieve high productivity and production of mushrooms by way of development of high yielding varieties with inherent capabilities for tolerance to biotic and abiotic stresses	To develop high yielding/disease resistant varieties of different mushrooms	Evaluation/Development of one hybrid strain of oyster mushroom	Number	-	-	1	1	1
		Three high yielding single spore selection of white button mushroom will be selected for AICRP trials	Number	-	-	2	3	4
		Evaluation/Development of one white strain of paddy straw mushroom	Number	-	-	1	1	-
3: Development and refinement in production technologies of different mushrooms including disease control and development of low cost machinery	Development/refinement of farmer-friendly cultivation technologies of different mushrooms and to develop suitable control measures for different diseases	Newly developed oyster mushroom cultivation techniques confirmed	Date	-	-	31.01.12	-	-
		New composting technique confirmed	Date	-	-	30.09.11	-	-
		Utilized unconventional agri/industrial wastes for compost production	Number	-	-	2	2	2
		Improvement in cultural practices of white button mushroom	Date	-	-	15.03.12	-	-
		Suitable strains for paddy straw cultivation selected	Date	-	-	31.12.11	-	-
		Improvement in cultivation technology for paddy straw mushroom	Date	-	-	31.12.11	-	-
		Refinement in substrate preparation for Shitake mushroom cultivation	Date	-	-	31.10.11	-	-

		Number of surveys conducted for pests and pathogens	Number	8	10	5	6	6
		Development of primers for wet bubble and yellow mould detection	Date	-	-	31.10.11	-	-
4: Development of technologies for utilization of spent mushroom substrate	Utilization of spent mushroom substrate as manure	Vermi compost prepared by SMS	Date	-	-	31.01.12	-	-
5: Development of technologies for value addition and processing of mushrooms	Development of value added products and post harvest technology	Number of mushroom products developed	Number	3	4	4	5	4
6: Development of print, audio, video material and ICT based model and other technologies for TOT/ knowledge dissemination	Development of an expert system on mushroom cultivation	Collection and compilation of data on Mushroom Crop with respect to its cultural practices, varieties, diseases and pests	Date	-	-	15.07.11	-	-
		Develope a knowledge base on the data collected	Date	-	-	15.12.11	-	-
		Development and designing of an expert system on mushroom cultivation	Date	-	-	15.03.12	-	-
	To conduct & coordinate the training programmes for farmers, SMS and Entrepreneurs	Various trainings on mushroom cultivation technology conducted	Number	8	7	4	5	5
	Organization/participation in Mushroom Mela, Exhibition for the promotion of Mushrooms	Numbers of Mushroom Melas, Exhibitions organized and participated	Number	4	4	3	4	4
Efficient functioning of RFD system	Timely submission	On time submission	Date	-	-	June 14, 2011	-	-

	of RFD for 2011-12 Timely submission of results for 2011 - 12	On time submission	Date	-	-	May 3, 2012	-	-
	Finalize a strategic plan for next five year plan	Finalize strategic plan for next 5 years.	Date	-	-	Dec 15, 2011	-	-
	Identify potential areas of corruption related to organization activities and develop an action plan to mitigate them	Finalize an action plan to mitigate potential area of corruption	Date	-	-	Dec 15, 2011	-	-
	Implementation of Sevottam	Create a Sevottam compliant system to implement, monitor and review Citizen's Charter	Date	-	-	Dec 15, 2011	-	-
		Create a Sevottam Complilant system to redress and monitor public Grievances	Date	-	-	Dec 15, 2011	-	-

Section 4: Description and Definition of Success Indicators and Proposed Measurement Methodology

Objective 1: India is endowed with innumerous mushroom flora across the country, which is threatened due to global warming in the present scenario, which needs to be protected and conserved. Efforts will be made to cultivate some of the edible wild mushrooms and also they will be utilized for enhancing the productivity of known cultivated mushroom through breeding using conventional and molecular techniques.

Objective 2: Our productivity and production of different mushrooms is almost lowest in the world and to attend higher productivity efforts will be made to develop productive, temperature tolerant and disease resistant varieties through breeding. Success indicator of this objective will be to evolve suitable varieties with respect to above parameters for white button, oyster and paddy straw mushroom.

Objective 3: This is the key objective of the Institute involving production technology of different mushrooms under cultivation in different parts of the country. As narrated above, our production of mushroom is almost lowest in the world. Under this, efforts will be made to generate farmers friendly cheap technologies to enhance their yield level. Development of low cost machinery and disease control of different moulds and pests occurring during cultivation will also be taken due care in this project. Obviously, success indicators under this objective would be to quantify the level of yield enhancement using newly developed technologies especially for button, oyster, milky and shiitake mushrooms.

Objective 4: Base material left after taking the mushroom crop is known as spent mushroom substrate (SMS). India generates sufficient quantity of SMS of different mushrooms. Success of this objective would be measured in terms of its proper recycling of SMS to be used as manure for field crops, as fuel and feed for animals.

Objective 5: With respect to value added and post harvest technologies it is envisaged to develop numbers of mushroom products for their liking by the consumers and also to develop suitable post harvest value addition technologies for different mushrooms.

Objective 6: Under this head several training programmes for KVKs, farmers, entrepreneurs and other stake holders is proposed for dissemination of mushroom knowledge throughout the country. Further, Mushroom Melas, demonstrations and other related activities of TOT are proposed. The success of this parameters will be gauged in terms of numbers of beneficiaries trained and impact of such TOT measures in popularizing the mushroom cultivation throughout the country.

Section 5: Specific Performance Requirements from other Departments

1. Full support of Council is required for providing proper funds to strengthen infrastructure, manpower and equipments required for R&D and promotion of mushroom throughout the country.
2. KVKs located in different parts of the country will have to come forward in disseminating the mushroom cultivation technologies in their areas.
3. Other funding agencies like DST, CSIR, etc. should whole heartedly support mushroom research projects.
4. Funding agencies like NHB, NABARD, Horticulture Mission and different bank should liberally support commercial mushroom projects for promotion of large scale mushroom cultivation in the country.

Section 6: Outcome/Impact of activities of Organization/Ministry

S.No.	Outcome/Impact of organization /RCs	Jointly responsible for influencing this outcome/impact with the following organization(s)/departments/ministry(s)	Success Indicators	Unit	2009-10	2010-11	2011-12	2012-13	2013-14
1.	Production of quality spawn of different mushrooms & development/ refinement of cultivation technologies for different mushrooms	SAUs and KVKs	Increase in production of different mushrooms	%	1	1.5	1.75	2.0	2.1
			Development of production technologies	Number	1	2	2	3	3
			Production of quality spawn	Ton	6	8	10	11	12
			Awareness of stakeholders and capacity building of the scientist through training/ demonstrations	Number	3	5	7	8	10