

FFP Portal: A tool for knowledge dissemination

of Farmer FIRST Programme

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The Farmer FIRST (Farm, Innovations, Resources, Science and Technology) Programme (FFP) aims at enriching Farmers–Scientist interface through technology development and application. This programme has been initiated since October, 2016 to provide a platform to farmers and scientists for creating linkages, capacity development, technology adaptation and application, on-site input management, feedback and institution building. Presently 55 FFP are being executed by various ICAR Institutes and Agricultural Universities across the country. Farmer FIRST provides opportunity for the researchers, extension professionals and farmers to work together and find appropriate ways for technology assembly application and feedback to ensure livelihood security.

Key words: ATARI, Farmer FIRST Programme, Intervention, Portal

THE Information Communication Technology (ICT) based systems are effective tools to disseminate the knowledge in the field of agriculture. A lot of information and knowledge is being generated under 52 FFP projects on different aspects like resource management, climate resilient agriculture, production management including storage, market, supply chains, value chains, innovation systems, etc. To manage this information and knowledge, a FFP portal has been developed and made available at <https://ffp.icar.gov.in/>. The portal is developed using .NET framework and it is web responsive. It is a single window platform which provides basic and details information of all FFP projects. The portal facilitates to principal investigators of the project to update and upload all types of related information for technology assessment on FFP and disseminated it to the farming community. The project details can be

viewed using selection criteria such as ATARI wise and organization wise. The portal provides information on latest publications, success stories, salient achievements, upcoming trainings and past events organized under FFP projects. The user can also view the interventions related to crops, horticulture, animal husbandry, fishery, integrated farming system, natural resource management, and communication. It also provides the images and videos related to FFP project activities. The user can search the contents based on Keywords and selection criteria.

Agricultural Extension Division of ICAR and ATARI which are at the top of the hierarchy, monitor the project activities and progress under this programme through this portal. Such type of portal need to be created in every programme for achieving visibility and accessibility of programme in sustainable way.

The Farmers' FIRST initiative has

been launched by ICAR to move beyond the production and productivity; to privilege the smallholder agriculture; and to handle complex, diverse and risk prone realities of majority of the farmers through enhancing farmers–scientists interface. The basic concept is that the farmers act as a centric role for research problem identification, prioritization, conduct of experiments and its management in farmers' field conditions.

Information Communication Technology (ICT) in agriculture is an emerging field focusing on the enhancement of agricultural and rural development in India. It involves application of innovative ways to disseminate of information in disadvantages area. ICT has a potential to contribute to achieve significant economic, social and environmental benefits. The advancements in ICT can be utilized for providing accurate, timely,

relevant information and services to the farmers, thereby facilitating an environment for more remunerative agriculture. ICT has a significant role to perform in evolving such a paradigm, as was evident from the interdisciplinary dialogue on IT: Reaching the Unreached.

With the rapid development of IT, the Agriculture/livestock information dissemination models are constantly evolved and improved. These information dissemination models can be classified into the following types:

- Web portal
- Voice-based service
- Text (SMS)-based service
- Blogs
- Interactive video conferencing service
- Mobile and internet based service
- Social media

The potential for application of ICT in the agriculture sector is very high. The new tools and evolvement of techniques and implications are clearly visible at the global scale. In view of the above to disseminate information generated from farmer FFP, a web portal has been developed.

Technology used in FFP portal

The FFP portal has been developed based on 3-tier

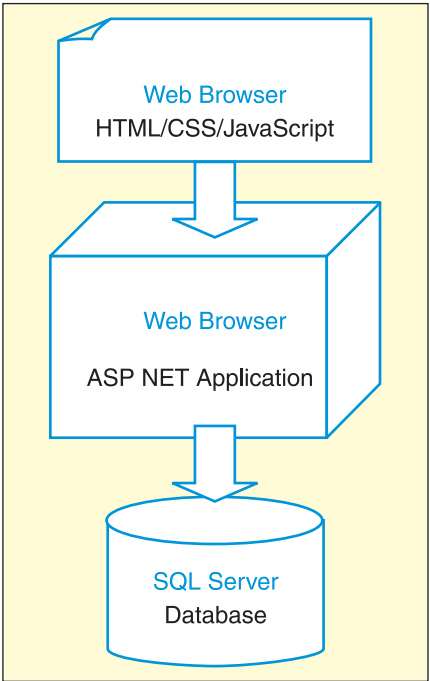


Fig. 1. 3-Tier architecture of ASP.NET application



Fig. 2. Home page of FFP portal

architecture using the following technology

- a. ASP.NET framework 4.5
- b. SQL Server 2012 used for database
- c. Visual studio 2013 as Integrated Development Environment (IDE)

The 3-tier architecture which is a form of client-server architecture, has been used to develop the portal in which the functional processes viz. logic, data access, data storage and user interface are maintained as independent modules on separate platforms. It provides many benefits for production and development environments by modularizing the user interface, business logic, and data storage. In the present system, there are three layers viz.,

- a. **Presentation layer** - the front end layer in the 3-tier system and consists of the user interface. This layer is built on web technologies such as HTML5, Java Script and CSS.
- b. **Application layer** - the functional business logic which drives an application's core capabilities. It has been constructed using C# language.
- c. **Data layer** - this layer depicts the database/data storage system and data access layer. Number of database software are available viz., MySQL, Oracle, PostgreSQL, Microsoft SQL Server, MongoDB, etc. For this system, Microsoft SQL Server

2012 is used.

FFP PORTAL

A lot of information and knowledge is being generated through 52 FFP projects on different aspects like resource management, climate resilient agriculture, production management including storage, market, supply chains, value chains, innovation systems, etc. To manage this information and knowledge, a FFP portal has been developed and made available at <https://ffp.icar.gov.in/>. (Figs. 1 and 2).

Modules of FFP portal

Farmer FIRST Programme (FFP) provides basic information of all projects under this programme. This portal (Fig. 2) acts as a medium between farmers and scientist as query resolver and knowledge disseminator. All ATARIs can monitor the work on projects under FFP of their respective institutes. This portal acts as a single hub of collection of images and videos of all events, trainings, activities and interventions of FFP projects. At present, 387 interventions, 200 events, 909 images, 30 videos and 87 publications related to FFP have been updated and uploaded on the portal by 22 principal investigators of the lead organization of the institutes.

Search module: An enriched search functionality has been

developed in FFP Portal. It facilitates to search any record by entering keyword and display the results under the different categories where the keyword is matched (Fig. 3). The user can select the options viz., project, intervention and training for search and then select state and district where FFP programme is being conducting. The user can also select the category and keywords for more precise result.

Dashboard: Its functionality has been developed in the portal for monitoring purpose. The count (Fig. 4) is available for project, intervention, organized event, image, video and publication with on click detailed information.

Annual progress report module: To capture the annual progress report from the different center, the module has been developed and user can upload their annual report through the portal (Fig. 5). The module is divided into five parts which includes background information, technical progress, project outputs, other achievements and list of publications. The reports are submitted year wise by the respective center.

Farm innovation and practices database: Farmer innovation and practices database has been developed in the portal. This feature (Fig. 6) is added to keep the record of the new innovative ideas practiced by the farmers for the betterment of farming techniques. This can be further shared and referred by all farmers.

Budget module: The user can add and update budget year and month wise. The Collaborative institute can also upload the budget on the portal (Fig. 7). ATARI and SMD can monitor the budget through this module.

Query module: A blog window has been developed in the portal for interaction of scientists with farmers. Registered farmers (or interested persons) are facilitated to send query to scientists and answer of the query can be given by the experts associated with FFP Project. The query is sent to many experts based on intervention and any one can reply. It is like chatting between farmers and multiple experts associated with the intervention selected by the farmers

Fig. 3. Search engine of FFP portal

Fig. 4. Dashboard

Fig. 5. Annual progress report module in FFP portal

Fig. 6. Farmer innovation in FFP portal

Fig. 7. Budget entry form in FFP portal

S.No.	Farmer Name	Query	Intervention Category	Solution	Scientist Detail
1	Mr. Ravi Singh	Which mandi I can sell mustard?	Agriculture Science	Mr. Ravi Singh, you can sell your mustard in your nearest grain market like other crops	ICAR-CSWRI ICAR-CSWRI, Asikanagar

Fig. 8. Query module in FFP portal

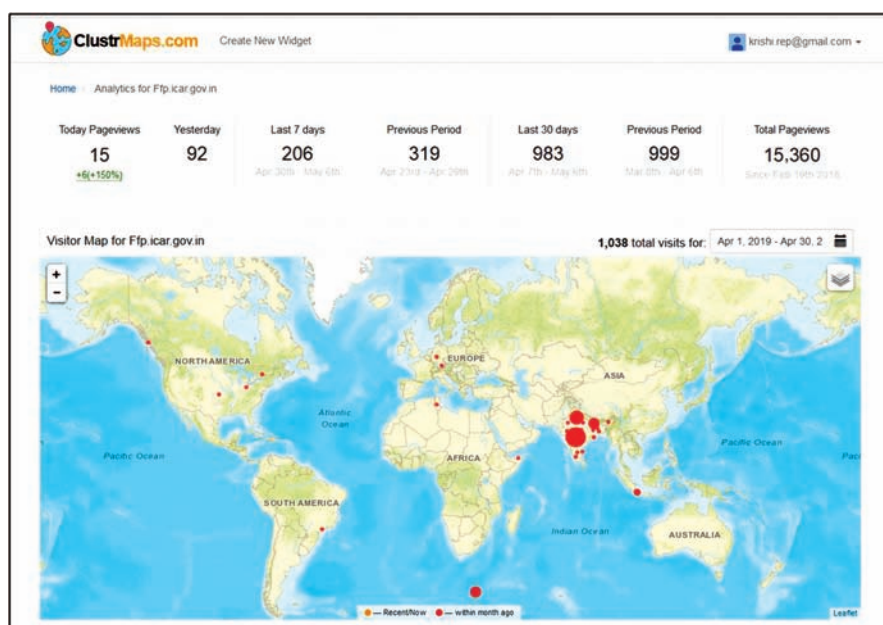


Fig. 9. Cluster map for FFP portal

for query. Query Search option has been provided in the portal through which the farmers can view the queries asked by farmers on this

portal (Fig. 8). Farmers can use the selection criteria viz. institutes or/and interventions.

Feature of FFP portal

- View of the project details
- Intervention details
- Search and advanced search
- Interactive conversation between farmers and experts
- Monitoring tools
- Image and video gallery

Statistics on user access of FFP portal

15,360 numbers of visitors have visited the FFP portal since its inception from February 2018. In April 2019, 1038 visitors have visited the portal. It can be concluded that this portal is gaining popularity day by day which could further be supported as shown in cluster map in Fig. 9.

CONCLUSION

Farmers' innovation, resources and technology have been introduced in formulating and execution of research project with farmer-scientist interface through FFP programme. This can more effectively be done through FFP portal (<https://ffp.icar.gov.in>). The portal provides the information about FFP programme, projects details, news and highlights, achievements, success stories, latest publications, FFP in media, image gallery etc. Additionally, this portal also provides information on farmers' innovation and practices. Blog/query module can help for more effective interaction among the stakeholders. This portal can be referred as a tool for extension professionals and researchers in Indian context.

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- Inputs from MoWR and DOLR received.
- Increase in agricultural production and productivity and enhance farm income.