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e-dalhangyan manch: A Digital Initiatives for Reaching the Pulse Growers

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Introduction:

The digital ecosystem of India is witnessing an exponential growth, offering numerous advantages to different sections of society. Digital initiatives in current times have completely revolutionized the information flow from information sources to target audience at cost and time effective manner in unprecedented ways, changing people's lives in every sphere of human life. Indian Agriculture has also been impacted by the digital revolution, ushering in positive changes in farmers' capacities for taking informed decisions in timely manner.

Pulses have multifaceted role in Indian agriculture and food systems. Pulses-the nutritionally dense seeds contribute to nutrition, food security, soil health, economic livelihoods and environmental sustainability in the country. They form an important source of affordable proteins for Indian population as well as occupy a prominent place in the practiced cropping pattern in the country. About a dozen of pulses are cultivated in the country, collectively occupying about 30 million hectares area. The pulse growers spread across the country, grow a wide variety of pulses while operating in complex diverse agro-production systems. The dynamic, vast and varied nature of information needs of pulse growers operating in different socio-economic as well as agro climatic conditions in the country, superimposed with regional and personnel preferences for pulse crops, warrants a complex and efficient flow of information between the information generation nodes and its utilization centres. Information empowerment of pulse growers with regard to the technological options related to pulse crops is the crux of enhanced pulse production and productivity in the country. Further, efficient channels for delivery of the information on available technological options relating to pulse crops need to be leveraged to reach the pulse growers across the country. This is particularly relevant in context of the need to minimize the time lag between technological advancement and their application at field conditions.

Several initiatives have been taken by ICAR-Indian Institute of Pulses Research, Kanpur for leveraging the transformative

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potential of digital tools for wide scale spread of information on pulse production technologies among pulse growers across the country at reasonable cost. Website are one of such initiatives as per the Forbes (2023) 5.70 million active websites in India. In this direction, ICAR-IIPR, Kanpur launched a web portal "e-dalhangyanmanch".

It is an interactive, dynamic and user friendly bilingual web portal (http://www.dalhangyanmanch.res.in/)designed to share and popularize the available on shelf technologies of major pulse crops with farmer, extension workers and other stakeholders. The developed portal contains useful validated information on all the major pulse crops including Chickpea, Pigeonpea, Fieldpea, Urdbean, Mung bean, Rajmas and Lentil. Comprehensive information in a well categorized and systematic manner is made available on the platform.

A detailed coverage of information on improved varieties of the major pulse crops is embedded in the portal in form of Varietal Information System on Pulses (VISP). Two images based interactive diagnostic tool-Disease and Pest Information (DPISP) and Weed Information System on Pulses (WISP) on all major pulses are also integrated on the portal. Further, web portal also provides answers to the Frequently Asked Questions (FAQs) pertaining to all the Seven pulse crops. The web portal has integrated video modules developed by institute, feedback window, success stories, and institute publications on the home page of the web portal. It also provides links to other important agriculture related websites and web portals like Digital India, India.gov.in, Make In India, My Gov., Data.Gov.in. The Hindi version of *e-dalhangyanmanch* was published in public domain on 5th Sept. 2017 while the English version (e knowledge platform on pulses) was released on 5th September 2021 in public domain. The web portal is available athttp://dalhangyanmanch.res.in/. Which has been visited by about 3.10 lakh users till date.

Details of Computer Software Developed by Division of Social Sciences

1. **Varietal Information System on Pulses (VISP)**

Varietal Information System on Pulses (VISP) is a web-based software tool designed to aid farmers and users in accessing information regarding improved varieties of pulse crops recommended for specific districts across the country. It encompasses a

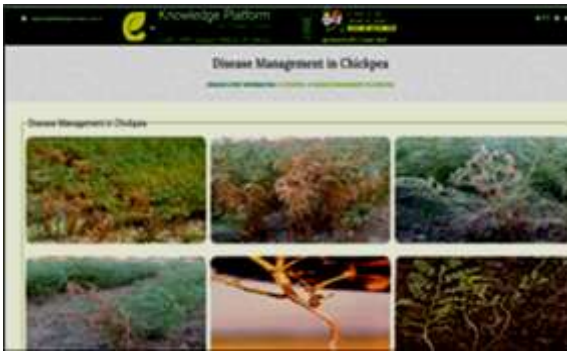
comprehensive database of 528 improved varieties developed by the National Agricultural Research System of country from 2000 to 2022, covering all major pulse crops such as Chickpea, Pigeonpea, Field pea, Urdbean, Mung bean, Rajmas, and Lentil.

The information system offers user-friendly navigation through map-linked interfaces, allowing users to select their state, district, and relevant pulse crop. Once a crop is chosen, the system facilitates the retrieval of information on improved varieties using various filters related to characteristics like production situation, seed size and colour, plant type, and tolerance to biotic and abiotic stresses specific to the selected crop This streamlined approach enables users to efficiently access relevant information based on their production situation and preferences for desired varietal traits.

Furthermore, VISP generates comprehensive reports on improved pulse varieties, detailing all the characteristics used as filters along with accompanying images. Its ease of use, functionality, and extensive database provide a unique advantage to this varietal information system on Pulses, making it an invaluable resource for farmers and stakeholders involved in pulse crop cultivation.

2. Disease and Pest Information system on Pulses(DPISP) :

Disease and Pest Information system on Pulses (DPISP) is an innovative, image-based interactive Information system designed to assist users in diagnosing and managing diseases and pests affecting pulse crops. Here's an overview of its features and functionality: DPISP has a comprehensive database of major diseases and pests known to affect major pulse crops like as Chickpea, Pigeon pea, Field pea, Urdbean, Mungbean and Lentil.



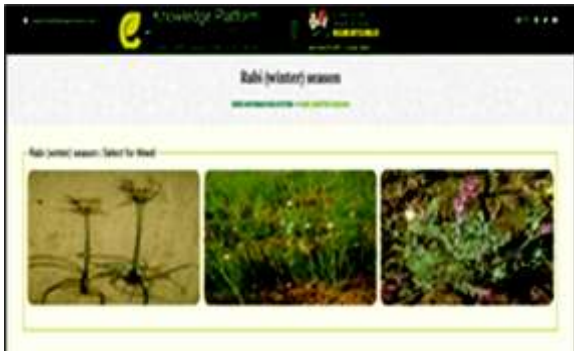
Upon selecting the category of disease or insect pest, users are prompted to choose the relevant pulse crop. Once the selection is made, for accurate diagnostic, information system displays the images of pulse crops at different growth stages infected with the diseases or insect pest, as per the initial

selection. Users can then select the images that best match their observations.

Based on the selection of images by the user, the DPISP system retrieves and presents detailed report on the details of specific disease or the insect pests along with additional photographs of symptoms and the causes, as well as recommended management strategies for each identified disease or insect pest. One of the key strengths of DPISP is its regular updates with new information on emerging diseases and pests, as well as advancements in management practices. This ensures that users have access to the most up-to-date information available, enabling them to make informed decisions to protect their crops and optimize yields. Overall DPISP serves as a valuable tool for diagnosing and managing diseases and pests in pulse crops. By providing targeted information and guidance, it empowers users to effectively safeguard their crops and mitigate potential losses, ultimately contributing to improved agricultural productivity and sustainability.

3. Weed Information System on Pulses (WISP)

Weed Information System on Pulses (WISP) is an image based interactive diagnostic tool designed to give easy access to information for addressing the weed-related issues in major pulse crops. The system covers weeds species commonly found in all major pulse crops (Chickpea, Pigeonpea, Field pea, Urdbean, Mungbean, and Lentil) to explore weed species visually and access detailed information about each species. The users can



The information system has interactive feature that allows users navigate through the database, view images of different weed species, get access to detailed information about each weed and compare them to the weeds they encounter in their fields. The information system has two basic component-diagnosis component and report generation on their management. In the diagnosis component of the information system, once the user choose the crop season (K*harif and Rabi*) of pulses, the image gallery of common weeds appears. After the user selects the image of weed, a report is generated on the details of the weeds, including its common and scientific name. Further, the WISP offers recommendations for weed management strategies tailored to specific weed species, including cultural practices, chemical control options, and integrated weed management

approaches aimed at minimizing weed competition and preserving crop yields.

WISP as an information system provides diagnostic tools to help users accurately identify weed species and provides validated information on their management measures. Overall WISP serves as a valuable tool for farmers, agronomists, and researchers involved in pulse crop production, helping them identify and manage weeds effectively to ensure optimal crop health and productivity.

In the current favourable policy and infrastructure support environment in India, interactive digital tools specially web portals in local language offer tremendous scope for bringing the most desired changes in agriculture landscape in the country. Developing the web portal need a meticulous planning and insight into the actual requirement of the farming community and the knowledge intermediaries. This would ensure wider acceptance. Developing and customizations of the content for improving its relevance is a crucial skill that decides on the acceptance of the tool among the users. ICAR-IIPR, Kanpur has made tremendous strides in harnessing the potential of digital tools for reaching to the vast pulse growers based in varying agro-ecological conditions in the country. An integrated approach in this regard has been followed by the institute, perfectly engaging the '*e-dalhangyanmanch*' web portal that comprehensively covers information on production technology of major pulses, FAQs, VISP, DPISP, WISP and links to other important websites/web portals.

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