Knowledge Management System For The Selection Of High-Yielding Rice Variety and Seeds

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Abstract--- This research covers the problem of the lack of information for farmers regarding rice seeds and high-yielding variety. Moreover, there is a limitation for experts in social knowledge regarding high-yielding rice variety and seeds. The purpose of this research is to develop a Knowledge Management System For The Selection Of High-Yielding Rice Variety and Seeds. The method used is the Linear Life Cycle model by Guariento and Riley. This method consists of six stages, including planning, knowledge definition, knowledge design, code & checkout, knowledge verification, system evaluation. The system implementation uses PHP and MySQL. The result in this research consists of varieties knowledge stored in search forms based on names, and parameters have been determined. Consultation knowledge stored in the post comments, e-mail, and yahoo messenger.

Index Terms— Knowledge, Seeds, Varieties, Linear Life Cycle Model.

1 INTRODUCTION

High-yielding varieties of paddy are developed more and more by plant breeding, and if the requirement is completed, those varieties will be launched by the ministry of agriculture [1].

High-yielding varieties strongly affect towards plants' height, amount of productive generations, clumps of rice height, quantities of unhulled rice per clump, percent of filled unhulled rice per clump, and 1000 seeds weight [2]. Furthermore, the farmers are enthusiastic when they know about the high-yielding varieties or certified. They are interested to utilize the high-yielding varieties or certified seeds [3]. The aim of the research is developing knowledge management system for the selection of high-yielding rice variety and seeds. It was done to develop farmers' knowledge about selecting the fit seeds and the fit yielding rice varieties. Result of developing the selection of high-yielding rice variety and seeds by knowledge management system was saved in database. Thus, the farmers can choose a type of variety which will be used for available parameter.

2 PREVIOUS WORK

By optimization of knowledge center function integrated to internet system, users can adopt any information and needed knowledge easily and fastly [4]. Development knowledge sharing culture in the government of DKI Jakarta for managing knowledge of each person, both of tacit and explicit wrapped in digital document and need knowledge sharing among employers for triggering the employers' performances by exploring the knowledge assets and utilization of information and technology [5]. Knowledge levels of farmers are determined by knowledge management modalities. It means, farmers are assumed have high level if farmers have enough understandings of agriculture, believed knowledge, and learn in group to apply and develop any agricultural innovation [6]. Basic of strong knowledge by knowledge system management based information technology, consists of potential actor of system and implication, knowledge selection and
3. METHODOLOGY

This research was conducted at Computer Science Laboratory, Bogor Agricultural University, in January 2012 until July 2012. The specific study of this research was conducted in Balai Besar Tanaman Padi (BBTP) Bogor and Balai Besar Tanaman Padi (BBTP) Lampung. In this research, to design any diagram for describing any flow chart, it utilized Microsoft Visio 2007. To build website application, it used Web Server Apache version 2.5.2. In addition, source code was processed by PHP version 5.2.1 and edited by Macromedia Dreamweaver 8. Furthermore, MySQL was utilized as database. The materials of this research consist of seed and paddy varieties BBTP Bogor, BBTP Lampung and Bogor Agricultural University. Linear Life Cycle model by Giarrantano and Riley method was used as the method of the research. This method consists of six stages, including planning, knowledge definition, knowledge design, code & checkout, knowledge verification, system evaluation. (Figure 1).

4. RESULTS

1. Planning. Planning define as build a knowledge management system in seeds selection and high-yielding varieties of paddy to help farmers to select and search fit seeds and varieties by desire criteria easily and fastly. Selected varieties function consist of seven criterias. They are, paddy type, age, rice texture, shape of unhulled rice, retention of pest infection, and land specification. Function of online consultation is provide consultation media for resolve faced problems fastly and easily.

2. Knowledge definition. Users used this system are seed experts and paddy varieties, field technician, and mentor of field school (SLPTT), head of farmels group (Gapoktan). Knowledge varieties can be got by selecting any desirable criterias and search according to varieties names. Searching result and selecting varieties result consist of selected number, plant breeding, types, age, rice texture, shape of unhulled rice, retention of pest infection, and land specification. Function of online consultation is provide consultation media for resolve faced problems fastly and easily.
texture consists of two main types, they are inhybrid and hybrid paddy. Land specification devide into 3 types, they consist of paddy field, dry paddy and swamp area. Texture of rice devide into 5 parts, they are pera, fluffier, strong fluffier and sticky rice. Unhulled shape divide into 4 shapes, they are rounded, slightly rounded, medium, and long-slender. Pest retention consists of chocolate bar hopper, stem borer and mice. Desease retention in this research consist of tungro, bluss and bacterial leaf blight. Unhulled rice devide into 5 parts, they are ultra genjah (<95 days), genjah (95-104 days), genjah (105-124 days), genjah (125-160 days), and age until >160 days. Consultation knowledge done by chatting discussion with expert, send any complains or questions via email to experts.

3. Knowledge design. The detail design represented by use case, diagram activities, class diagram, and sequential diagram and graphical user interface. Use Case Use case was used for describing system from user point of view. Use case diagram shown at Figure 2. Diagram activity is used for determining general event flow. The diagram consist of selecting varieties, consultation, update varieties, user update. Class diagram will connect interaction class in system. The class consist of paddy class, admin class, consultation class, and comment class (Figure 3). Sequential diagram used for determining what should do of the system. Sequential diagram consist of sequential in selecting variety, sequential diagram to consultation, sequential diagram to update varieties and sequential diagram to user update. Grafiik User Interface This step was done by making plan of structure in designing graphic user interface and plan test of blackbox method. Planning of graphic user interface consist of home, selecting varieties consultation (Figure 4).

4. Code and Checkout. Code was done by implementation knowledge design with PHP as source code and MySQL as database. The checkout was processed by blackbox principal. The result code and checkout shown Figure 5

5. Verification Knowledge was done by farmers and admin with questioner helps. 1. Knowledge verification according to complete list variety IR 36, users selected IR 36 automatically a system shown detail knowledge varieties. Verification result was fit and right. 2. Knowledge verification by search varieties refer to categories. a. Paddy field type category • Users want to search knowledge varieties type inbrid paddy by selecting inbrid one. System shown 100 hybrid varieties, they are : Aek Sibundong, Air Tenggulang, Angke, Banyuasin, Batang Gadis, Batang Lembang, Batang Pikan, Batanghari, Batutegi, Bondojudo, Celebes, Clapus, Classen, Cibodas, Cibogo, Cigeulis, Chiang, Cilamak, Cilawin, Cimelati, CISadane, CISantana, CISokan, CIujung, Conde, Danau Gaung, Dendang, Digul, Dodokan, Fatmawati, Gajah Mungkur, Giliran, Indragiri, Inpago 4, Inpago 5, Inpago 6, Inpago 7, Inpago 8, Inpago 9, Inpago 10, Inpago 11, Inpago 12, Inpago 13, Inpago 14, Inpago 15, Inpago 16, Inpago 17, Inpago 18, Inpago 19, Inpago 20, Inpago 21, Inpago 22, Inpago 23, Inpago 24, Inpago 25, Inpago 26, Inpago 27, Inpago 28, Inpago 29, Inpago 30, Inpago 31, Inpago 32, Inpago 33, Inpago 34, Inpago 35, Inpago 36, Inpago 37, Inpago 38, Inpago 39, Inpago 40, Inpago 41, Inpago 42, Inpago 43, Inpago 44, Inpago 45, Inpago 46, Inpago 47, Inpago 48, Inpago 49, Inpago 50, Inpago 51, Inpago 52, Inpago 53, Inpago 54, Inpago 55, Inpago 56, Inpago 57, Inpago 58, Inpago 59, Inpago 60, Inpago 61, Inpago 62, Inpago 63, Inpago 64, Inpago 65, Inpago 66, Inpago 67, Inpago 68, Inpago 69, Inpago 70, Inpago 71, Inpago 72, Inpago 73, Inpago 74, Inpago 75, Inpago 76, Inpago 77, Inpago 78, Inpago 79, Inpago 80, Inpago 81, Inpago 82, Inpago 83, Inpago 84, Inpago 85, Inpago 86, Inpago 87, Inpago 88, Inpago 89, Inpago 90, Inpago 91, Inpago 92, Inpago 93, Inpago 94, Inpago 95, Inpago 96, Inpago 97, Inpago 98, Inpago 99, Inpago 100. Verification result was fit and right. • Users want to search knowledge varieties type hybrid paddy by selecting inbrid one. System shown 11 inbrid varieties, they are : Hipa 3, Hipa 4, Hipa 5 Ceva, Hipa 6 Jete, Hipa 7, Hipa 8 Pioner, Hipa 9, Hipa 10, Hipa 11, Maro, Rokan. Verification result was fit and right.

6. Evaluation. To According to result knowledge test and verification, knowledge management system in selecting seeds and varieties are fit to user need and user demand served via web and report.
Figure 3. Class Diagram

Figure 4. Grafik User Interface
5 CONCLUSIONS

Knowledge management system for the selection of high-yielding rice varieties and seeds are developed integrations between technologies with mechanism to help the farmers and other humanity in getting knowledge rice seeds and varieties. In the other hand, this system can help the government especially the experts and consoler to the farmers. Consultation knowledge have been gotten by selected that criteria. The second variety knowledge form based on varieties name. This variety knowledge can get by selected varieties based on name. Consultation knowledge have been gotten by selected that criteria. The second variety knowledge form based on varieties name. This variety knowledge can get by selected varieties based on name.

The suggestion to continue dan develop knowledge management system in the selection of paddy varieties and seeds are developing knowledge management system paddy plant disturber organism.

shapes, they are rounded, slightly rounded, medium, and long-slimed. Pest retention consists of chocolate bar hopper, stem borer and mice. Disease retention in this research consist of tungro, blass and bacterial leaf blight. Unhulled rice divide into 5 parts, they are ultra genjah (<95 days), extremely genjah (95-104 days), genjah (105-124 days), mid genjah (125-160 days), and age until >160 days. This knowledge varieties have been gotten by selected that criteria. The second variety knowledge form based on varieties name.
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