

DIGITAL DAIRY FARM MANAGEMENT SYSTEM

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ABSTRACTS

A digital dairy farm management system is presented in this paper, which based on standardization dairy farm management framework. It can manage dairy farm from each stage including dairy animals' basic information, milk Information, milk selling electronic records, vaccination schedule and milk production cost. Integrate electronic dairy farm management records was set up, which based on dairy farm activities and can implement statistical analytic function of dairy farm and guide dairy farm management. The Unique numbers and integrated dairy animals records information of every dairy animals will lay the foundation for food of animal origin traceability. This system includes four subsystems dairy animals' basic information management subsystem, milk Information subsystem, milk selling electronic records subsystem, vaccination subsystem and costing subsystem. With the help of system analysis and software design techniques, it is can manage the data of milk production, milk selling, milk production cost easily and effectively.

Keywords: digital management, dairy animal , dairy Farm

INTRODUCTION

The digital Technology in this era of globalization has accentuated new modes of knowledge transformation and communication patterns. Digital has opened up uncommon opportunities for developing countries in terms of providing low cost access to information. This is the fastest growing tool of communication ever with the number of users growing from 150 million in 1998 to more than 700 million in 2001 (Brown, 2002). India has 70% of its population, which is dependent on Agriculture for its livelihood. Considering this, use of digital Technology in Dairy Farm Management is of strategic importance in a country like India. Digital Technology have tremendous potential in timely collection of data and distributing it to the potential users even in developing countries. Thus, providing low cost access to information. German mathematician, Gottfried Wilhelm Leibniz ([http:// www.encyclopedia.com/history/dictionaries-thesauruses-pictures-and-press-releasesdigital-technology#](http://www.encyclopedia.com/history/dictionaries-thesauruses-pictures-and-press-releasesdigital-technology#)), defines it as “Digital technology is a base two process. Digitized information is recorded in binary code of combinations of the digits 0 and 1, also called bits, which represent words and images. Digital technology enables immense amounts of information to be compressed on small storage devices that can be easily preserved and transported. Digitization also quickens data transmission speeds. Digital technology has transformed how people communicate, learn,

and work“. The dictionary defines management as “the act or art of managing; the conducting or supervising of something (as a business).” As we can see, this definition is relatively broad and applicable to most management situations. If looking at business management more specifically, we will find definitions that are more about how the management is done. Giles and Stansfield defines it as “Management is a comprehensive activity, involving the combination and co-ordination of human, physical and financial resources in a way which produces a commodity or a service which is both wanted and can be offered at a price which will be paid, while making the working environment for those involved agreeable and acceptable.” All business management, regardless of the size of the firm, involves decision making and supervising. A good manager is usually characterized by making good decisions. All decisions made by a manager might not be satisfactory, but the more decisions that are made in an informed manner, the more likely we are to produce a positive outcome. For management of Dairy Farm one should store the large amount of data and from that He has to take a decision. Decision can be taken by measuring key parameters and comparing these with kept records, the observation of a possible problem will be facilitated. With the help of system analysis and software design techniques, system is can manage the data of dairy animals' basic information ,milk production, milk selling , vaccination, costing for farm on dairy farm efficiently. System generate the various dynamic

reports of milk production per animal, milk selling, profit/loss etc. In some economically developed countries, information technology (IT) continues to develop rapidly and is widely and successfully employed in the dairy cattle sector. Large central computers with millions of cow files, operated by cow diseases control program, have been operational for decades to provide the farmers with information (Xiong B H, et al.,2005; Nuthall, P, et al., 2004; Warren, M, et al.2000). Data bases are also increasingly used in a decentralized way on low cost personal computers, by farmers and farm advisors, in the so-called management information systems. Veterinary practitioners use such systems to support a new methodology for safeguarding cow health under the prevailing intensive production conditions (Vaarst, M, et al., 2006; Hamilton, C, et al., 2006; Nyman, A, et al.2007).

METHODOLOGY

Web-based user-friendly, a digital dairy farm management system has been implemented as a layered structure having three layers viz., User Interface layer (UIL), Application layer (APL) and Database layer (DBL). Each layer having its own specific functions. The User interface layer is implemented using combination of HTML, JavaScript and CSS. Application layer is implemented using PHP (http://php.net). It is an open source general-purpose server-side scripting language originally designed for web development to produce dynamic web pages. Database layer is implemented using MySQL (http://www.mysql.com) database for storing dairy farm data. It is the world's most used open source relational database management system (RDBMS) as a server providing multi-user access to a number of databases. It can be accessed using the browser of the user's system. The system is completely menu driven and offers user-friendly screens organized to simplify and reduce effort to understand. The layer structure of a digital dairy farm management system is presented in Fig. 1

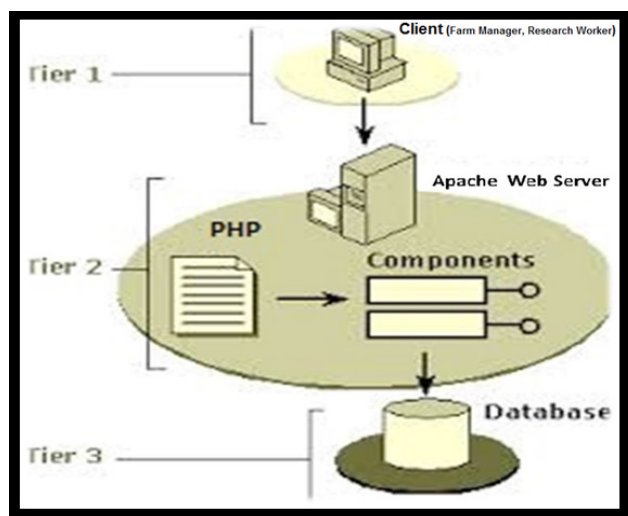


Fig. 1 : Layer structure of a digital dairy farm management system

RESULTS AND DISCUSSION

The Home page (Fig.2) of the digital dairy farm management system has menu items like “Home”, “Animal Info”, “Vaccination”, “Milk Information”, “Milk Selling Information” and “Cost Benefit”. By clicking on these menu options one can get the desired page.

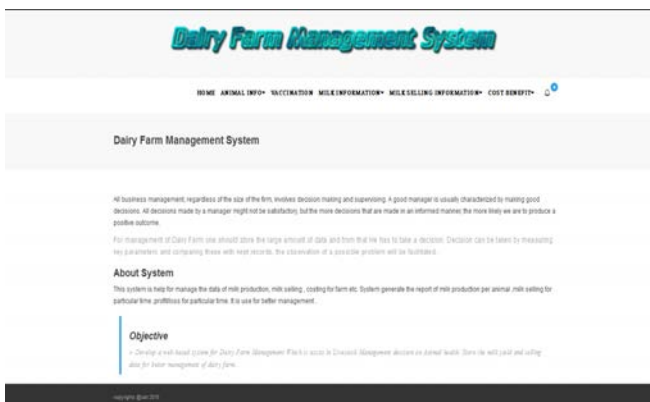


Fig. 2 : Home Page

To create and manage databases for dairy animals' basic information, vaccinations schedule of dairy animals', animal wise milk production information, animal wise milk selling information and animal wise cost benefit information, the end users have to click “Animal Info”, “Vaccination”, “Milk Information”, “Milk Selling Information” and “Cost Benefit” options respectively. This options provides end users with a systematic way to create, retrieve, update and manage dairy animals' basic information (Fig. 3),

The various aspects included in this studied have been organized under the following subsystems:

- Dairy animals basic information management subsystem
- Milk Information subsystem
- Milk selling electronic records subsystem
- Vaccination and costing subsystem

Vaccinations Schedule of dairy animals' (Fig. 4), Animal wise milk production information (Fig. 5) , Animal wise Milk Selling Information (Fig. 6) and Animal wise Cost Benefit Information (Fig. 7) respectively.

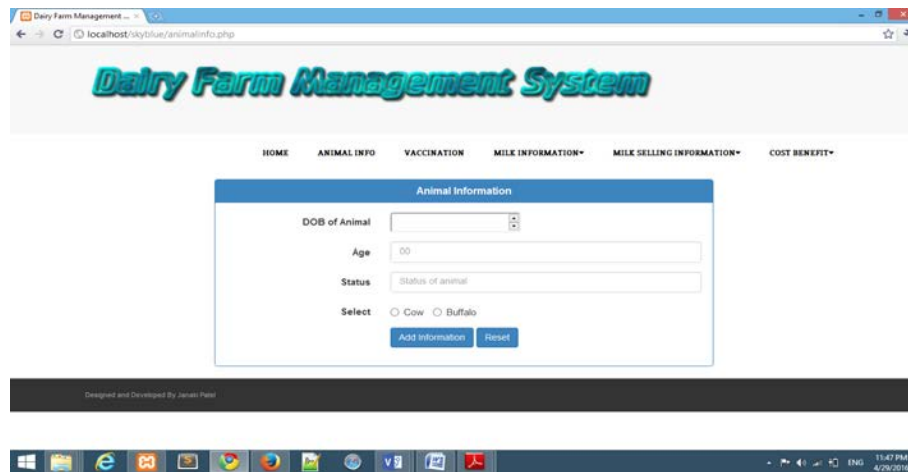


Fig. 3 : Dairy Animals' Basic Information

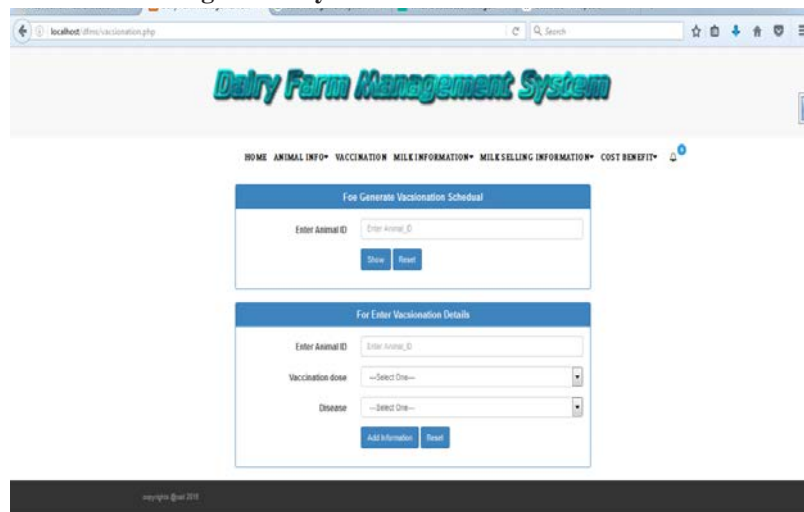


Fig. 4 : Vaccinations Schedule of Dairy Animals'

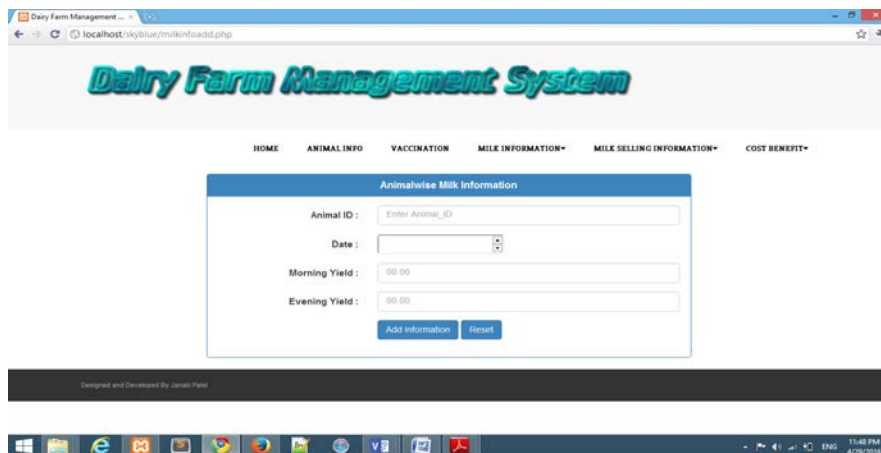


Fig. 5 : Animal wise milk production Information

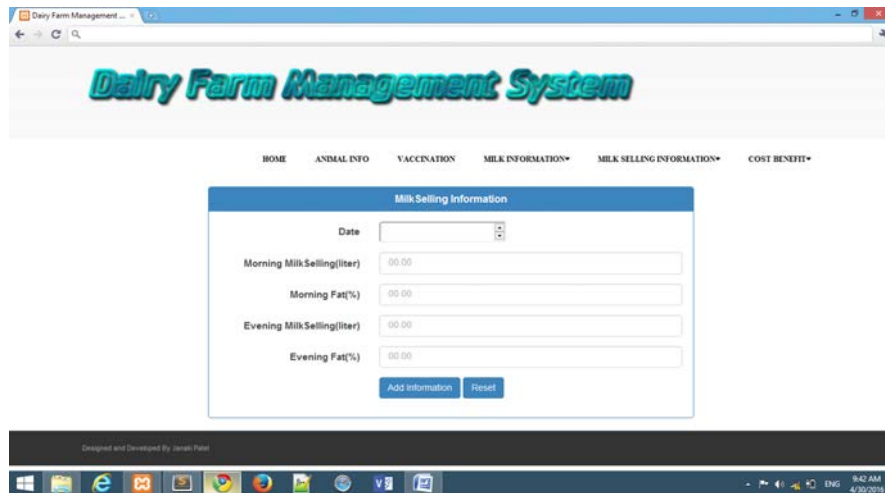


Fig. 6 : Animal wise Milk Selling Information

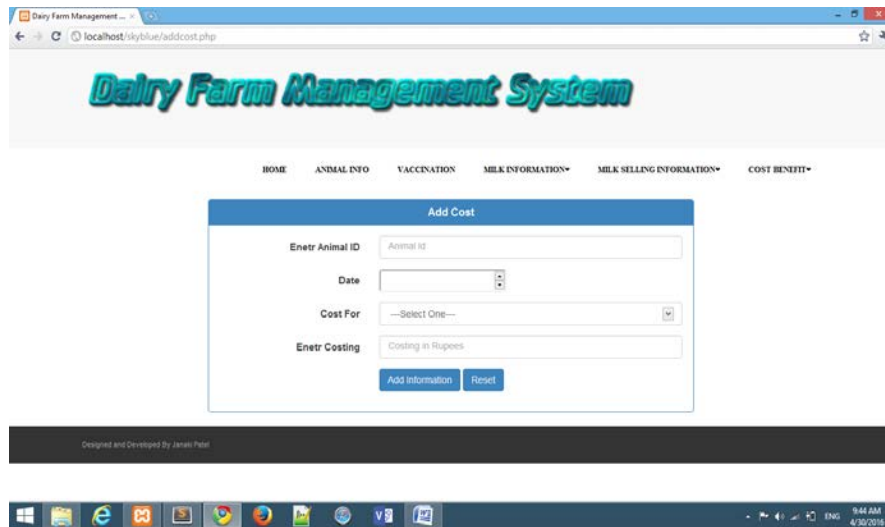


Fig. 7 : Animal wise Cost Benefit Information

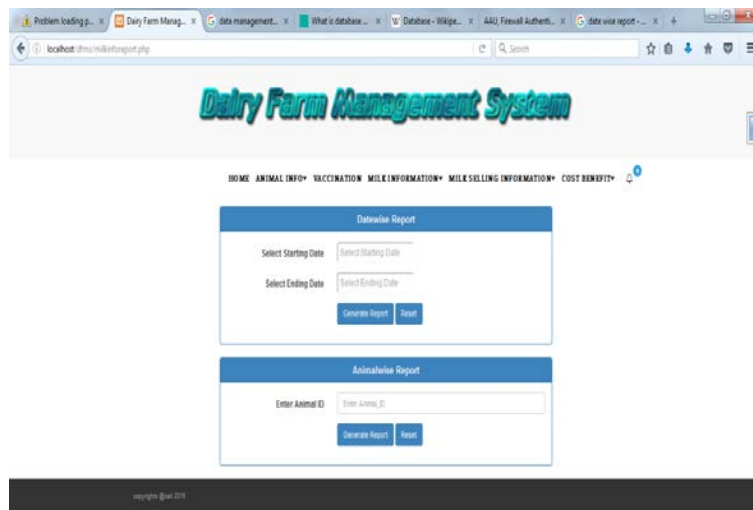


Fig. 8 : Date wise Milk Production Report

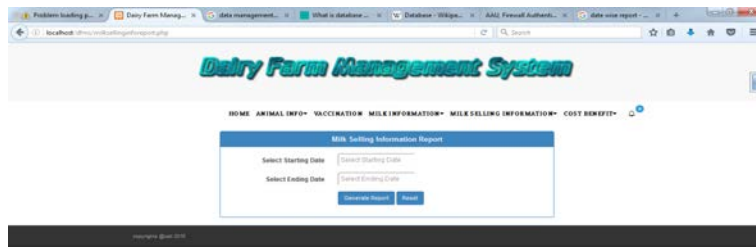


Fig. 9 : Date wise Milk Selling Report

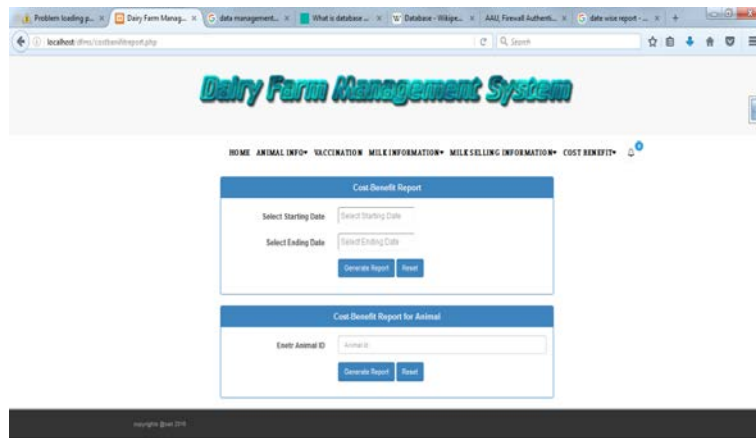


Fig. 10 : Cost Benefit Report

By clicking on “Milk Information”, “Milk Selling Information” and “Cost Benefit” menu items on Home page one can get the report option under each menu item for “Date wise Milk Production” (Fig. 8) , “Date wise Milk Selling” (Fig. 9) and “Cost Benefit” (Fig. 10) reports respectively.

The Date wise Milk Production and Date wise Milk Selling reports are presented in Fig.11 and Fig. 12 respectively.

Sr No	Animal ID	Date	Morning Yield(liter)	Evening Yield(liter)
1	1	2016-04-17	12.23	15.23
2	1	2016-04-22	14.12	26.3
3	1	2016-04-26	12	10
4	1	2016-04-27	10.23	12.23
5	1	2016-04-27	12.1	10.12

Fig. 11 : Date wise Milk Production Report

Sr No	Date	Morning Selling(Liter)	Evening Selling(Liter)	Total Selling(Liter)	Morning Amount(Rs)	Evening Amount(Rs)	Total Amount(Rs)
1	2016-04-01	23	25	48	690	750	1440
2	2016-04-02	53	54	107	1590	1620	3210
3	2016-04-03	45	53	98	1350	1590	2940
4	2016-04-04	45	56	101	1350	1680	3030
5	2016-04-06	58	54	110	1680	1620	3300
6	2016-04-07	75	78	153	2250	2340	4590
7	2016-04-08	45	56	101	1350	1680	3030
8	2016-04-09	56	54	110	1680	1626.9	3306.9
9	2016-04-10	56	54	110	1686.9	1627.8	3314.7

Fig. 12 : Date wise Milk Selling Report

CONCLUSION

The digital dairy farm management system that was created implements routine monitoring standardization, applicable and integrity electronic milk selling records, dairy animals' basic information, milk Information, vaccination schedule and milk production cost. It can manage dairy farm from each stage. Integrate electronic dairy farm management records was set up, which based on dairy farm management records. The Unique numbers and integrated dairy animals records information of every dairy animal will lay the foundation for food of animal origin traceability. With the help of system analysis and software design techniques, it is can manage dairy farm activities effectually. These will bring evident economic returns. Thus it will be an important application to design and develop digital dairy farm management system in management of dairy farm.

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