

Dairy Cattle Management- Web App

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Abstract - The large scale dairy farming industry has a large amount of data to store. We have designed this website to digitalize all the data and save paper and time. This website can also be used for small scale and medium scale dairy farming. We have provided two panels (admin and member) in this website. Admin is the owner of dairy farm and member may be the manager or worker at the cattle field. The admin panel has facilities such as manage member, category, view production, view pre delivery log, view post delivery log, medical log. Admin is not allowed to make any changes in the daily information filled by member. The batch wise and member wise production of milk can be viewed by admin. All the information about cattle is shown to admin but cannot be edited. Admin has right to manage members. He can add or remove member and the usernames are assigned to members by admin. The number of cattle and types can be edited by admin. In member panel, we have provided facilities such as cattle food information, delivery information, heat date, milk production, semen log, pre delivery log, post delivery log, rest period, medical log etc. The member has right to fill all the information about cattle on daily basis. The calculations for heat date, semen date, delivery date, rest period are atomized. Member receives alerts about all the dates and food timings on the front page of the panel.

Key Words: Dairy, Web Application, Cattle, Pregnancy Cycles, Heat Date

1. INTRODUCTION

DCM website controls a large amount of data in cattle farming. There are different fields for admin and member. Admin is the owner of cattle farm and member may be the manager or worker or man providing milk to the owner. Admin doesn't need to enter data on daily basis. The basic information such as number of cattle, types of cattle is taken from admin. Admin has right to add and delete member from the website. He gives username and password to the members and controls them. If the manager or member enters or leaves the farming, admin can add or delete the member. Admin can view day batch wise production of milk and member wise production of milk. All the information about pre delivery log, delivery log, and medical log can be seen by admin but cannot be edited. Member knows the details about cattle and works in the farm so, the access for entering details about daily milk production and other information is given to the member.

The food that is to be given to cattle is decided according to the amount of milk it gives. Hence, the record of milk production of each cattle is taken on daily basis. This information is filled by member. The heat date, semen date, checking pregnancy date, rest period, delivery date are provided to member so that it is easier to handle a large amount of cattle. Notifications for the same are continuously given on the website.

Admin and member are connected through our website. We have made our website user friendly and the language used is also very easy to be understood so that it can be handled by anyone.

2. SIGNIFICANCE

Our project is stepping towards the digitalization. From anywhere you can manage the dairy farm. When you are in home or any other place just by your mobile and this website user will get reminders in the form of notifications so that his staff or he go at the working place and manage cattle. These notifications can be related to feeding, medicines, or heat time related etc.

3. OBJECTIVE

- Save papers and make all information in digital form which will help in environmental responsibility.
- User will get exact count of no of liters produced by each animal.
- All notifications related to animal so there feeding, delivery, medical and all other life issues user can control.

4. LITERATURE SURVEY

Akbar N [1] has modified the research in Feed intake control in ruminants is mediated through physical and metabolic constraints. Rumen fill, dietary fiber concentration, and fiber digestibility are important physical constraints. The overall performance of all reproductive traits under this study indicated poor performance of the herd comparative to its counterpart herd in the same altitude range of the tropics and ideal ranges for dairy cows. Wondossen A, Mohammed A and Enyew Negussie [2] have

researched in Reproductive Performance of Dairy Cows in a Tropical Highland Environment. Any genetic improvement in dairy cattle requires information on reproductive performance in the given population. This study was carried out to evaluate the effect of non-genetic factors on reproductive performance traits. J Marcelino Kongo[3] had studied small enterprise producing traditional foods have a high social, economic and even ecological role as they usually are based on sustainable technology, their products are unique and thus competitive, and are the source of jobs and income for many rural families acting as true guardians of the land. Kimaro E.G, Lyimo-Macha J.G and Jeckoniah J.N (2013)[4] researched on Gender roles in small holder dairy farming pertinent issues on access and control over dairy farming resources.

5. Facilities Provided By DCM

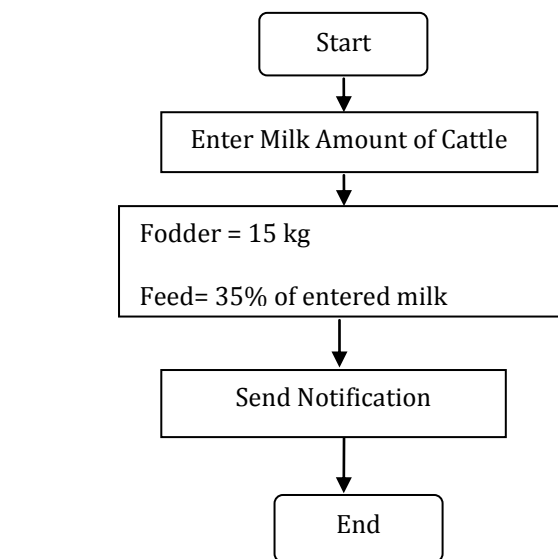
DCM provides different facilities to the member and admin. It can be easily studied understood with the help of flowcharts. So Let's see how the facilities will be provided to the user of website.

5.1 FOOD

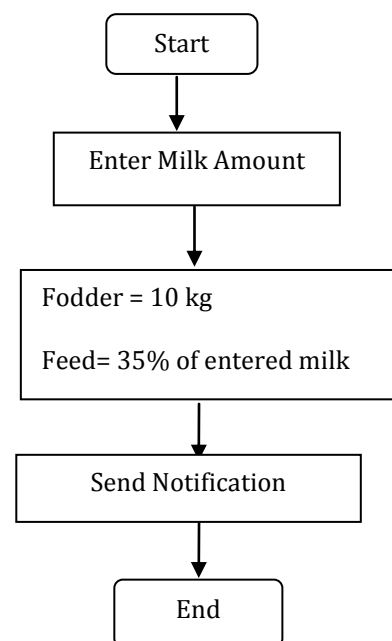
As the site is mainly for buffalos and cows we have considered two types of food for them. One is fodder which will be constant for cows and buffalos while feed will be varied according to the milk given by those cattle. This is because we calculate amount of feed to be given with the help of given milk by those cattle. This detail of food we have collected from a local farmer. According to the health and condition of cattle this may vary.

Buffalo:

According to our source, for buffalo fodder should be given 15Kg and Feed will be 35% of the milk given by that buffalo. While for cow fodder should 10Kg and feed will be again 35% of given milk. The user can increase or decrease the amount of food by observing the health and present condition of the cattle. Like for the rest period (before approximately three months from the delivery period called as rest period. At this time taking out of milk from the cattle should be stopped) the amount of food should be decreased.



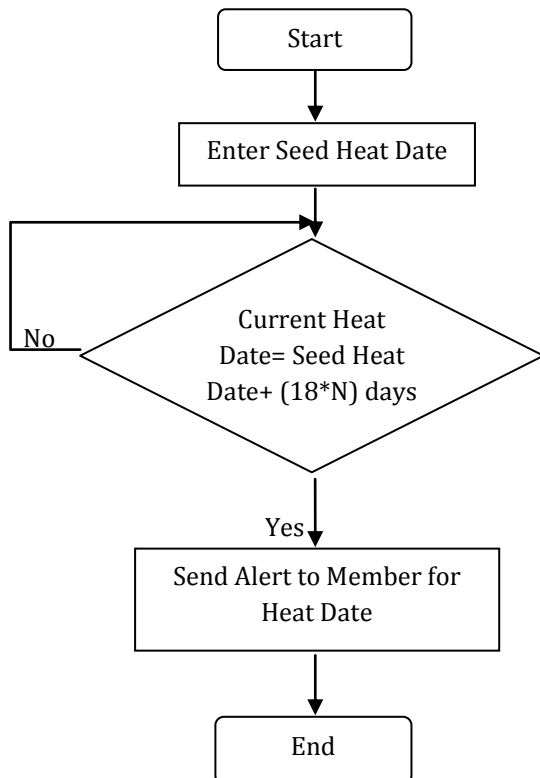
Cow:



5.2. HEAT DATE

The heat period of cattle is for 2 to 3 days per month. The cycle for heat date is of 18 days. We take the seed heat date of cattle from the member and then calculate the current heat date. The next heat date of cattle is calculated by adding 18 days in the seed heat date. To obtain current heat date, the calculated date is compared with the current date. If the calculated date is less than today's date then again the same process is repeated. If the calculated date is equal to or greater than today's date then it is considered as current heat date.

Reproductive Management Estrus detection unobserved estrus may be due to managerial deficiencies and short period of estrus. The dairy animals should be observed for heat signs at least three times a day. Wall charts, breeding wheels, herd monitors and individual cow records may be used for identify the estrus. Teaser bulls (vasectomies or by applying apron) are useful in identifying heat in large number of animals especially buffalo cows. Provision of adequate lighting to improve estrus detection is necessary. This requires rectal examination by qualified veterinary doctor.

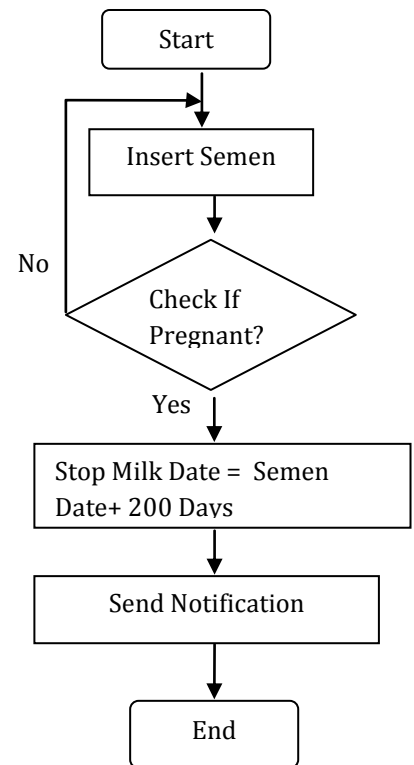


5.3 STOP MILK DATE

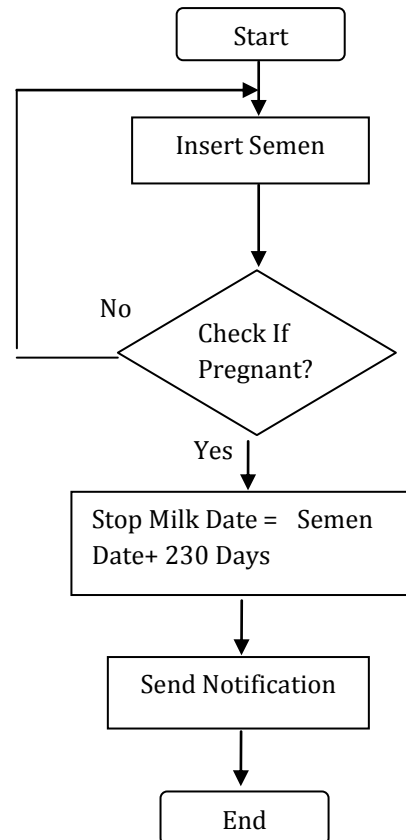
Cow:

Semen is inserted on the heat day. The day of checking whether the cattle is pregnant is after 18 days from the semen date. If the cattle is not pregnant then the same process is repeated on next heat date. If the cattle is pregnant, delivery date is calculated.

To save energy of cattle and for getting a healthy baby, the milk production from the cattle is stopped 2 months before the delivery date. The date for stopping milk production is decided in different ways for cow and buffalo as their pregnancy periods are different. For cow, milk production is stopped after 200 days from semen date and that for buffalo is stopped after 230 days from semen date.



Buffalo:

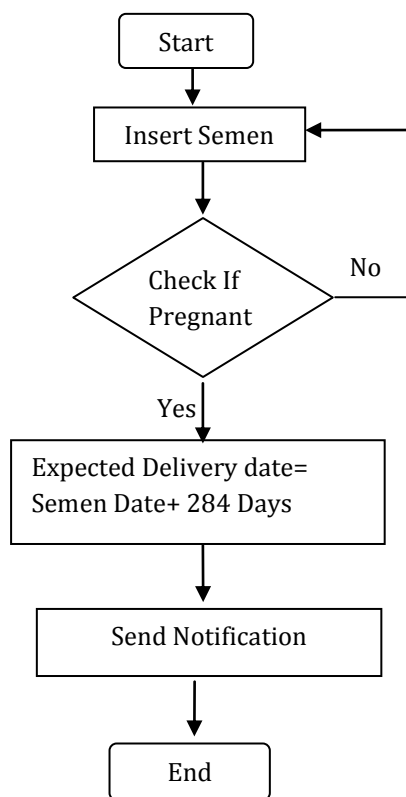


5.4 DELIVERY DATE

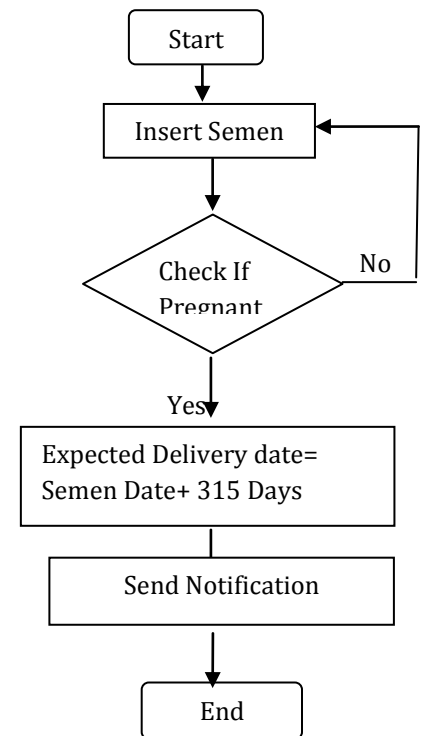
Semen is inserted on the heat day. The day of checking whether the cattle is pregnant is after 18 days from the semen date. If the cattle is not pregnant then the same process is repeated on next heat date. If the cattle is pregnant, delivery date is calculated.

The pregnancy period of a cow is 9 months 9 days (284 days) and that for buffalo is 10 months 10 days (315 days). The delivery date of cattle is calculated by adding the pregnancy period in semen date. For cow the delivery date is calculated by adding 284 days in the semen date and that for buffalo is obtained by adding 315 days in the semen date.

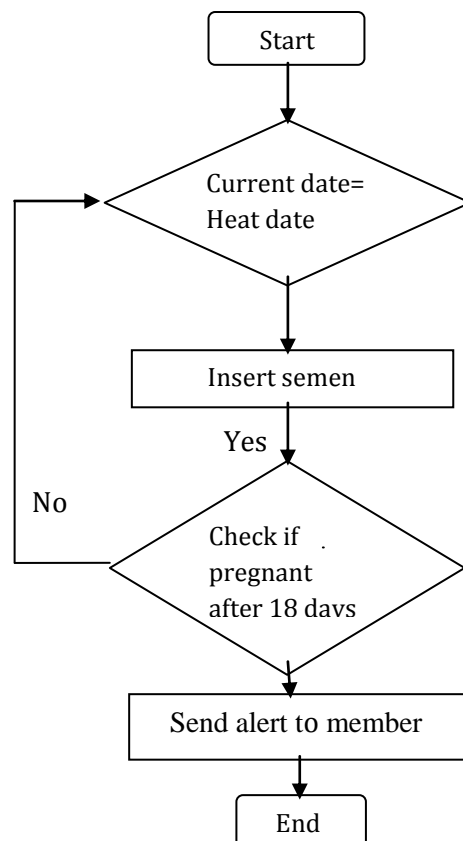
Cows:



Buffalo:



5.5 CHECK PREGNANCY

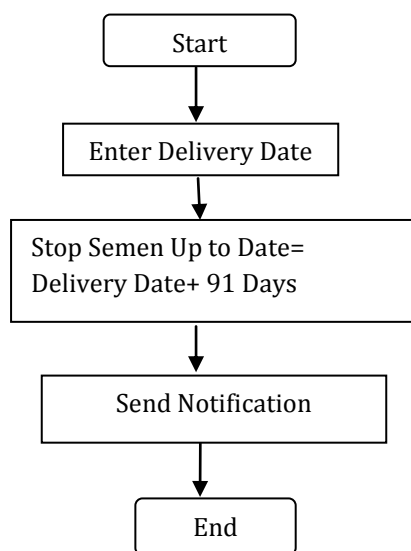


After breeding, animals should be checked for pregnancy within 45-60 days by qualified veterinary doctor. Semen is inserted on the heat day. The day of checking whether the cattle is pregnant is after 18 days from the semen date. If the cattle is not pregnant then the same process is repeated on next heat date. If the cattle is pregnant, delivery date is calculated.

5.6 REST PERIOD:

After delivery, the cattle is on the rest period. Milk is taken from the cattle but they are not made pregnant. The rest period is of 91 days for both cow and buffalo. After 91 days again the cycle of heat date and semen date is started.

When we want to stop milk, feeding should be decreased. After pregnancy period of milk giving is 7 to 8 months. The amount to be feed per cattle is dependent on amount of milk they give. Cattle feed is used to increase the milk yield. When cattle is on dry period, to maintain her body weight feed should be of one kg. To stop the milk of cattle feeding should be decreased.



6. SOFTWARE TOOLS USED

FRONT END

- Server Side Language : PHP
- Lay Outing Language : HTML
- Designing Language : CSS
- Design Framework : Bootstrap

Backend

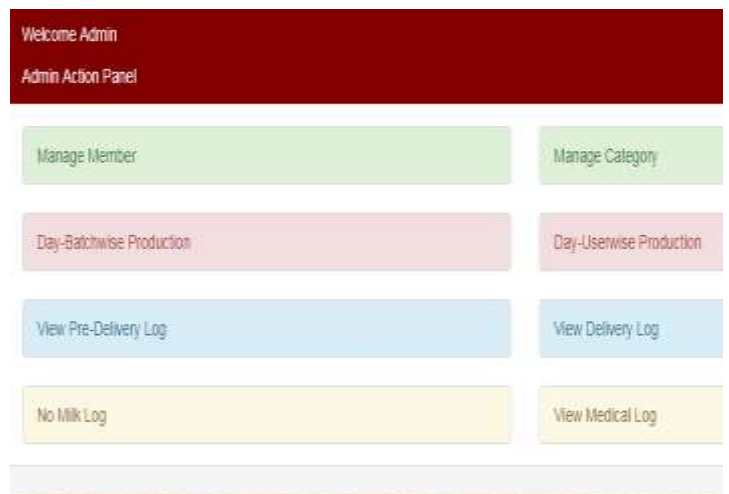
- : Mysql(Database)
- Code Editor : Notepad
- Output Software : Chrome, Firefox
- Server Software : Wamp Server

7. ADVANTAGES

- i. The details of cattle can be accessed with a single click.
- ii. The user doesn't need to store information in any other form.
- iii. Notifications for feeding the cattle are given twice a day.
- iv. Notifications about monthly cycles and milk cycles are sent time to time.
- v. Easy to operate.
- vi. User friendly

8. RESULTS

- Admin Panel



- Member Panel



9. CONCLUSION

By designing this website we have achieved our goal to store a large amount of data and save papers. This website is easy to be handled and we have used very common words that can be understood by anyone. The website helps to handle a large amount of cattle as it calculates various dates and food amount for each cattle.

Acknowledgment

First and foremost, I thank the almighty God for guiding me throughout my studies till the accomplishment of this project. I am grateful to my supervisor, Dr.M.S.Chavan for the useful guidance and suggestions throughout the project; it has been a great pleasure for me to get an opportunity to work under him. A project of this nature could never have been attempted without reference to and inspiration from the works of others whose details are mentioned in reference section. I also acknowledge all of them. Lastly, my thanks goes to all of my lecturers, classmates and friends in the department of Electronics and Telecommunication Engineering at the University of shivaji who extended all sorts of help to the accomplishment of this undertaking.

REFERENCES

- [1] Akbar N, Department of Animal Sciences," Physical and Metabolic Constraints on Feed Intake in Ruminants: A Systematic Model", *May 27, 2018, J Adv Dairy Res 2018, Vol 6(2): 204*
- [2] Wondossen A, Mohammed A and Enyew Negussie, "Reproductive Performance of Dairy Cows in a Tropical Highland Environment", *18 May 2018, J Adv Dairy Res 2018, Vol 6(2): 203*
- [3] J MarcelinoKongo, "Small dairy industry: Socio-economic challenges, sustainability and innovation", *June 30, 2016, J Adv Dairy Res 2016, 4:2(Suppl)*
- [4] Kimaro E.G, Lyimo-Macha J.G and Jeckoniah J.N (2013): Gender roles in small holder dairy farming pertinent issues on access and control over dairy farming resources in Arumeru district, Tanzania: Livestock Research for Rural Development. Volume 25, Article #82. Retrieved June 27, 2014

BIOGRAPHIES



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