

Interface of Computer Programming in Cow Re-Productivity Management

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Abstract : Day to day management of various action performed against cow herd reproductive stages is become very headache for farmer. The programme is proposed to remember the reproductive parameters of cow life cycle and predict the action to be carried out on particular day by comparing various standard parameters. Proposed study will help to reduce the labor work as well as helps to maintain proper time bound veterinary actions.

Introduction : Saroj Doodh dairy farm (Akole, Maharashtra) is the 1st computerized dairy farm in this tribal area. More than 90 cows of type HF are in this dairy farms. The installed milk yields programme help during management of milk productions which records the daily milk production cow wise. But, the critical task was to maintain the health of cow and reproductive programme accurately as the number of cows are increased day to day. The purpose of this study is to design a permanent database for reproductive parameters which includes the parameters of reproductive stages and the parameters of span of time of each action. And code a programme which will remember all these parameters with each cow history then as per date suggest the reproductive actions to be perform.

During this study, the past few year records of 90 cows of saroj dairy farm are viewed. The parameters which affect on calculating the next action date to perform reproductive action on cow are identified and stored in database. With the help of this, each animal daily compared and reproductive actions are identified which are time bounded important activities. Such activities are found directly affect on health of cattle and over all milk production.

Objective and Scope :

The study was done to identify the parameters that will affect on calculating the next stage of reproductive system of cow. Identify the relationship and the flow of data from previous reproductive stage to the next stage is carried out. The current status of animal then compared with these identified parameter which outputs the next date and next action to be carried out on a particular day.

RESEARCH PROBLEM AND METHODOLOGY :

The history of cow is very important record for farmer. Various attributes of cow need to maintain during history record. The following model (fig.1) describes the interface of computer programme in the reproductive stages of cow. Initially the cow records with all history is processed

through programme. The main attribute of cow record is last Calving Date(in case of Cow) or Birth Date (in case if Heifer). The programme retrieves the standard stage parameter of cow that mainly involves the period and the origin date. This is shown fin table(1). The standard parameter of date span (table.2) is then compared with today’s date and the reproductive action is suggested by the programme.

The fig. 2 shows the life cycle stages from birth date in case of heifer or from calving date in case of cow. Some standard parameters are found during the study regarding to the test action that can be perform on each cow during day routines. These parameter directly

The main problem is that to identify the standard parameter

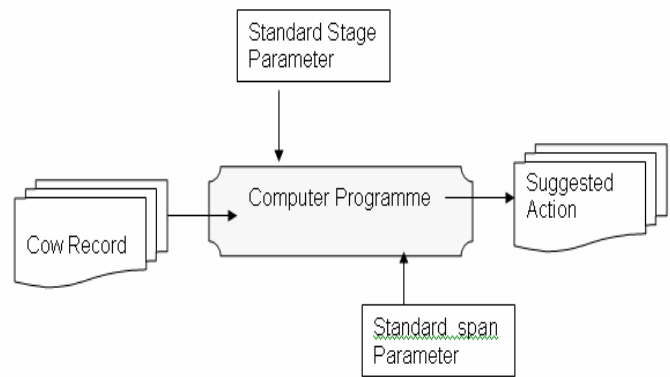


Fig.1 Computer Interface Model

AnimalType	AnimalCast	TestName	Unit	Period	Date Of Origin	InseminationYN	First HitYN	Pregnant YN	Calf YN
Cow	Hf	Calving	M	9	InseminationDate		Y		
Cow	Hf	CheckHit	D	21	FirstHitDate	N	Y		
Cow	Hf	Dry	M	7	InseminationDate			Y	
Cow	Hf	FirstHit	M	2	CalvingDate				
Cow	Hf	Insurance	Y	1	InsuranceDate				
Cow	Hf	Pregnant	D	75	InseminationDate	Y			
Cow	Hf	ReturnHit	D	21	InseminationDate	Y			

Table 1. Standard Cow Life Cycle Stage Parameters

Table 2. Standard time span Parameters Different Life

AnimalType	AnimalCast	TestName	Unit	Minus	Plus
Cow	Hf	Calving	D	-9	9
Cow	Hf	CheckHit	D	-3	3
Cow	Hf	Dry	D	0	5
Cow	Hf	FirstHit	D	-3	3
Cow	Hf	Insurrance	D	-2	2
Cow	Hf	Pregnant	D	0	3
Cow	Hf	ReturnHit	D	-3	3

Cycle Stages of cow Re Reproductive System.

Cow goes from different life cycle stages. All these stages are time bounded and can be predict by some method with the help of above specified parameters. (See table 1 & 2). Following are the main stages or action need to performs.

- First hit check
- Check hit test
- Insemination action
- Return hit check test
- Pregnant test
- Dry test
- Calving Check & action

Following fig. shows these stages and the specified duration between them.

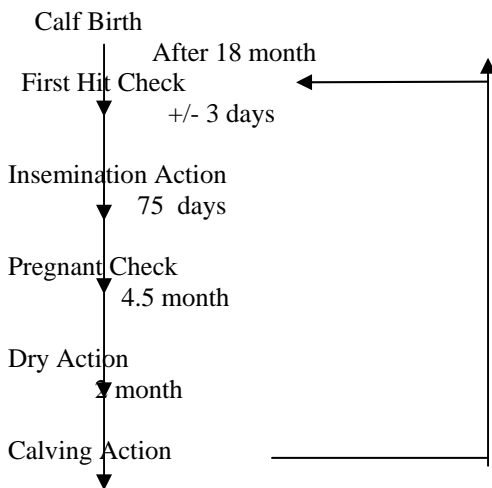


Fig.2 Life Cycle Stages and actions of cow Re Productive Chain

Data Analysis of Cow History:

Cow history is an initial data that will processed in further actions and updated. The history involves the various attributes which are further processed and compared with standard parameters cow ID, Last Calving Date etc.

The List of Attributes are as follows in following

Table.3

CowID	CalvingDate	PregnantDate
CowType	InseminationYN	DryDate
Cast	InseminationDate	PregnantYN
CurrentStatus	FirstHitYN	
BirthDate	FirstHitDate	

Table 3. Attributes of Cow History.

The Fig.2 shows how the cow history data is used to suggest the next stage action of each cow.

Action Analysis

Various action needs to perform on daily routine of farmer. This includes First Hit Check- Return Hit check- Insemination- Pregnancy Check- Dry check- Calving Check.etc. The standard stage parameter table 1 & 2 is used. To perform different check the different parameters needs to check which is as follow.

1.First Hit Check Analysis:

During this check, the last calving date of animal is examined. The MinDate & MaxDate is calculated with the help of standard stage parameter table 1. The table shows –

Unit=M, Period=2

Date of origine=CalvingDate

for the testname =‘FirstHit’. This means the First Hit Check date will be come after 2(period) month (unit) from the calving date(date-of-origin). This will expected date for First Hit Check action of that animal/cow.

Then standard parameter table.2 is used in which testname =‘FirstHit’ is searched. It founds

Unit=D, Plus=3 & Minum= - 3.

This helps to calculate Mindate and maxdate.

MinDate=+/- 3 days from Expected Date

MaxDate=+/- 3 days from Expected Date

If the Todays date is lies between MinDate & MaxDate then the programme suggest the animal is under First Hit Check action.

On this date the insemination can took place. If insemination carried out then its date is recorded in cow history. Other wise cow is leave in same stage and after 21 days again the First Hit Check is calculated.

2. Return Hit Check Analysis:

During this check, the last Insemination date of animal is examined. The MinDate & MaxDate is calculated with the help of standard stage parameter table 1. The table shows –

Unit=D,
Period=21,
Date of origine=InseminationDate, &
Insemination=Y
for the testname =‘ReturnHit’. This means the ReturnHit Check date will be come after 21(period) days (unit) from the Insemination date(date-of-origin) and only after insemination is given=Y. This will expected date for Return Hit Check action of that cow.

Then standard parameter table 2 is used in which testname = ‘ReturnHit’ is searched. It finds

Unit=D,
Plus=3 & Minum= - 3.
This helps to calculate Mindate and maxdate.
MinDate=+/- 3 days from Expected Date (of Return Hit Check)
MaxDate=+/- 3 days from Expected Date (of Return Hit Check).

If the Todays date is lies between MinDate & MaxDate then the programme suggest the animal is under Return Hit Check action.

3.Pregnancy Check Analysis:

During this check, the last Insemination date of animal is examined. The MinDate & MaxDate is calculated with the help of standard stage parameter table 1. The table shows –

Unit=D,
Period=75,
Date of origine=InseminationDate, &
Insemination=Y
for the testname =‘Pregnant’. This means the Pregnant Check date will be come after 75(period) days (unit) from the Insemination date(date-of-origin) and only after insemination is given=Y. This will expected date for Pregnant Check action of that cow.

Then standard parameter table 2is used in which testname = ‘Pregnant’ is searched. It finds

Unit=D,
Plus=3 & Minum=0.
This helps to calculate Mindate and maxdate.
MinDate= 0 days from Expected Date (of Pregnant Check)
MaxDate=+ 3 days from Expected Date (of Pregnant Check).

If the Todays date is lies between MinDate & MaxDate then the programme suggest the animal is under Pregnant Check action.

4.Dry Check Analysis:

During this check, the last Insemination date of animal is examined. The MinDate & MaxDate is calculated with the help of standard stage parameter table 1. The table shows –

Unit=M,
Period=7,
Date of origine=InseminationDate, &
Pregnant=Y
for the testname =‘Dry’. This means the Dry Check date will be come after 7(period) month(unit) from the Insemination date(date-of-origin) and only after cow is Pregnant=Y. This will expected date for Dry Check action of that cow.

Then standard parameter table 2 is used in which testname = ‘Dry’ is searched. It finds

Unit=D,
Plus=5 & Minum= 0.

This helps to calculate Mindate and maxdate.
MinDate= 0 days from Expected Date (of Dry Check)
MaxDate=+ 5 days from Expected Date (of Dry Check).

If the Todays date is lies between MinDate & MaxDate then the programme suggest the animal is under Dry action.

5.Calving Check Analysis:

During this check, the last Insemination date of animal is examined. The MinDate & MaxDate is calculated with the help of standard stage parameter table 1. The table shows –

Unit=M,
Period=9,
Date of origine=InseminationDate, &
Pregnant=Y
for the testname =‘ Calving’. This means the Calving Check date will be come after 9(period) month(unit) from the Insemination date(date-of-origin) and only after cow is Pregnant=Y. This will expected date for Calving Check action of that cow.

Then standard parameter table 2 is used in which testname = ‘Calving’ is searched. It finds

Unit=D,
Plus=9 & Minum= 9.
This helps to calculate Mindate and maxdate.
MinDate= -9 days from Expected Date (of Calving Check)
MaxDate=+9 days from Expected Date (of Calving Check).

If the Todays date is lies between MinDate & MaxDate then the programme suggest the animal is under Calving action.

Suggested Action Plan by proposed computer interface.

Date:<InputDate>
FirstHit : 3
CheckHit:8
ReturnHit:1
Pregnant:39,82
Dry:5,78
Calving:7

Where: <InputDate> is an input date given to the interface. This is by default current date and hence action plan is suggested for today. The action to be performed is listed one by one with the animal ID. This suggest which action need to carried out on which animal/cow. This out come comes through this interface refers the ideas and methods which are discussed earlier.

e.g. in above fragment, it is shown that the Dry action is need to carried out on animal number 5 & 78. This is calculated by comparing standard parameter with current status of cow and today's date which are discussed in above methodology.

CONCLUSION :

The computer programme found very useful reminder in managing dates of cow reproductive stages and its action. It keeps the accuracy in dates and need not be remember all the various dates and history of cow. Due to instant reminder , the farmer can makes action on proper dates and hence it will improves overall health permanence of cow.

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