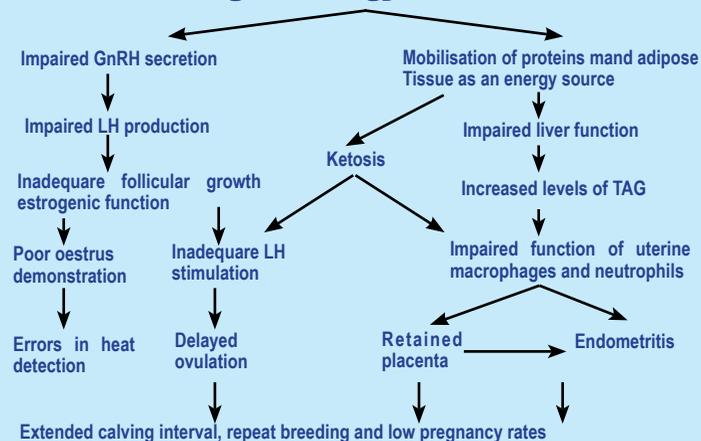


Anoestrus and Repeat Breeding in Dairy Cows Causes and Management



ICAR RESEARCH COMPLEX FOR GOA
(Indian Council of Agricultural Research)
Old Goa - 403 402, Goa

Negative Energy Balance



Pathogenesis of anovulatory status/anoestrus in cattle

Resumption of cyclic activity after calving is influenced by nutrition, body condition, suckling, lactation, dystocia, breed, age, month of calving, uterine pathology and debilitating disease. It is well established that poor nutritional status and Negative Energy Balance are responsible for the majority of anoestrus cases in both dairy and beef cattle.

Treatment of anovulatory/anoestrus conditions in cattle

Treatment is based on:

1. Improvement in energy status- optimal nutrition during the transition period and during early lactation.
2. Hormonal treatments- combined with increased energy supplementation or reduced suckling stimulus may also help to stimulate oestrus.

Suboestrus

Most important is to base treatment on improving oestrus detection:

1. knowing what to look for
2. allowing enough observation time
3. frequent observations
4. easy identification of individuals
5. good fertility records
6. Possible use of milk progesterone kits.

The control of oestrus and ovulation by the use of prostaglandins, gonadotrophin-releasing hormone or progestagens may ameliorate some of the problems of oestrus detection by helping the farmer to detect oestrus within a defined period.

Anovulation with follicle growth up to the emergence stage. In these cases treatments with GnRH usually have no effect, as the follicles on the ovary do not have adequate LH-receptors to respond.

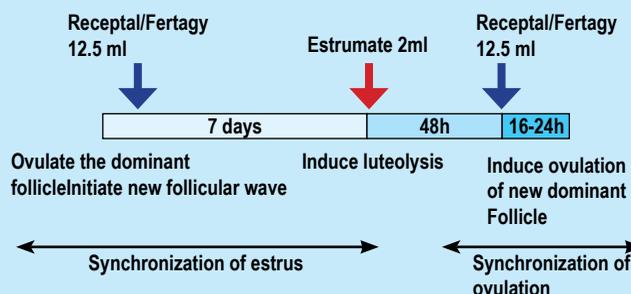
FSH/PMSG treatment combined with improved nutrition can increase follicle growth.

- Start with PMSG (Folligon):
 - 500-850 iu per cow of bostaurus type and crosses
 - 300-350 iu per cow of bosindicus type
- Once the follicular growth is increased GnRH (eg. Receptal; 2.5-5ml) can be used to stimulate maturation and ovulation of the dominant follicle.
- Do not breed/AI in the first oestrus

Anovulation with follicle growth up to deviation phase

Ovsynch protocol

GnRH stimulation + induction of ovulation



Modified Ovsynch protocol- second GnRH replaced by hCG (e.g. Chorulon; 1.500 IU).

Dairy cows can be successfully treated with simple or modified Ovsynch protocol as many anovulatory dairy cows have follicles of sufficient size and ovulatory capacity but do not have an LH surge.

Prepared under Tribal Sub-plan 2011-2012

Dr. M. Karanakaran
Scientist
(Animal Reproduction)

Dr. E. B. Chakurkar
Senior Scientist
(Animal Reproduction)

Dr. S. K. Das
(Livestock Production
And Management)

Dr. N. P. Singh
Director
(ICAR RC, Goa)

Published by
N. P. Singh

Director
ICAR Research Complex for Goa
Old Goa, Goa- 403 402

Technical Assistance
Edward Crasta
T-5 (Animal Science)

For further details contact

N. P. Singh

Director

ICAR Research Complex for Goa
Old Goa, Goa- 403 402
Ph.: (0832) 2284678 / 79

Email: director@icargoa.res.in / www.icargoa.res.in

All rights reserved

©2012, ICAR Research Complex for Goa

REPEAT BREEDER COW

A cow is called as repeat breeder when it has failed to conceive even after three or more number of services, has normal estrus cycle length, no abnormality in the vaginal discharge, no palpable abnormality in the reproductive tract, has calved at least once before and less than ten year of age. Repeat breeding is one the most import infertility problem faced by field veterinarians. The cows look apparently normal and it is difficult to diagnose the cause.

Causes

Fertilization failure and early embryonic mortality are two major causes for repeat breeding problem

Fertilization failure

Fertilization failure accounts for about 40 per cent of the repeat breeder cows.

It may be due to failure of ovulation, delayed ovulation, defects in the ovum, poor quality of the semen used, low sperm concentration, poor motility, improper handling of semen and AI, inflammatory conditions and anatomical defects of the genital tract of cow.

Early embryonic death

Most of the embryonic death occurs between 8 and 19 days after breeding before the critical stage of maternal recognition of pregnancy. Embryonic death may be due to cytogenetic abnormalities of the early embryo, unfavourable uterine environment by hormonal imbalances, uterine infections, nutrition, environmental stress and immunological factors.

Cytogenic abnormalities

Critical requirement for the embryo survival is the presence of a normal complement of chromosomes. Chromosomal aberrations play some un-quantified role in early embryonic loss.

Unfavourable uterine environment

Uterine environment enables the spermatozoa to ascend, provides adequate nutrients for different stages of embryonic development, maintains an appropriate milieu and fulfils immunologic requirements. Uterine environment can be affected by hormonal imbalance, infections, nutrition and environmental stress.

The presence of non-specific uterine infection around the time of insemination may interfere with fertility. Severity and their effect on fertility are mainly determined by the duration of the infection. The bacteria may interfere with fertility by killing the gametes or conceptus, changing the uterine milk, toxic products and producing chronic histologic lesions.

Specific uterine infections

Organisms which cause early embryonic death are Trichomonas fetus, Campylobacter fetus, Brucella abortus, IBR-IPV and others.

Nutritional causes

Extremes of nutrition are detrimental to the survival of embryo. Deficiency of selenium and vitamin E were reported to cause early embryonic death. Extended period of feeding estrogenic forages affects the embryonic survival.

Diagnosis

Reproductive history and gynaecological examination of the cow
Examine for the normal structure of the reproductive organs, nature of discharge
Tubal patency test by PSP dye.
Microbial culture of vaginal discharge
Narrowing the exact cause is usually difficult

Management of repeat breeder cow

Specific treatments for conditions like endometritis, delayed ovulation may be carried out whenever suspected them as the cause. If specific cause was not identified the following guidelines may be followed.

Bring the animal into positive nutritive balance

Use good quality semen having more than 50 per cent progressive forward motility.

Inseminate the cow at right time of the estrum. Do AI twice at 12 to 24 hour interval.

Follow proper AI technique.

After AI, Clitoral massage or 100 micro grams of GnRH or 1500 IU of luteinizing hormone may be administered to stimulate ovulation.

Skip the AI; administer 1 million units of penicillin in saline twice at 12 hours interval during estrum.

Flushing the uterus with normal saline with moderate pressure to remove cellular debris/ mild blocks in oviducts. Sexual rest for two consecutive cycles and breeding.

ANOESTRUS IN DAIRY COWS

Anoestrus

The cow is not observed in oestrus either because she has not come into oestrus (not cycling) or because oestrus was not detected (cycling).

True anoestrus

The cow does not come into oestrus because she has inactive ovaries.

Suboestrus

The cow has normal cyclic activity, but is not observed in oestrus due to weak or absent oestrous behaviour, or insufficient observation.

If oestrus has not been observed in a dairy cow by 60 days post partum the condition is defined as Post Partum Anoestrus (PPA), whether she is cycling or not.

Classification of anoestrus in cattle

Benefiting from the use of ultrasonography and growing knowledge of follicular dynamics in cattle the following classification of anovulatory status is followed

- i) Anovulation with follicle growth up to the emergence stage
 - Cows exhibit very small follicles that are growing only to the emergence phase and do not proceed further.
 - Fairly common in cattle exposed to poor feeding conditions such as extensive pasture management in tropical zones.
 - The underlying factor is inadequate FSH stimulation
- ii) Anovulation with follicle growth up to deviation phase
 - Follicular growth takes place and proceeds through emergence and deviation but does not lead to ovulation.
 - A frequently reported form of anoestrus. Commonly occurs in the post partum period in lactating dairy and suckled beef cows.
 - The characteristic signs of this condition are small ovaries, with the absence of a corpus luteum or ovulatory size follicles. The ovaries however show continuing follicular growth in a dynamic wave pattern up to the deviation phase.
 - The underlying physiological problem is an inhibitory effect of oestradiol on GnRH/LH pulses that does not allow the final growth or oestradiol production by the post deviation dominant follicle.



Ovary in anoestrus cow

Anovulation with Follicle Growth to Ovulatory or Larger Size of Follicle

Essentially the dominant follicle from the previous follicular wave persists and does not ovulate; consecutive follicular waves also do not reach ovulation. Cows with ovarian cysts (anovulatory follicular structures) therefore have ovarian follicular waves similar to those of cows that ovulate (normal cows) at the end of oestrus, but these follicles fail to ovulate.