A Review on Reproductive Health Problem in Dairy Cows in Ethiopia

Nuraddis Ibrahim

Jimma University, School of Veterinary Medicine, Ethiopia

Abstract: Several reproductive problems have a direct impact on reproductive performance of dairy cows. Abortion, retained fetal membrane, dystocia, vaginal and uterine prolapse, anoestrus, repeat breeder and the subsequent and endometritis are reviewed. In the absence of recent published documents, unpublished studies were cited to provide some information on distribution and importance of major reproductive health problems in Ethiopia. Finally, different strategies for the control and prevention of reproductive health problems are discussed.

Key words: Abortion • Anoestrus • Dystocia • Endometritis • Repeat breeder • Vaginal prolapse • Uterine prolapse

INTRODUCTION

Abortion: Abortion is the expulsion of dead fetus of recognizable size before full term of the gestation period [5]. Abortion in dairy cattle is commonly defined as a loss of the fetus between the age of 42 days and approximately 260 days. The prevalence of abortion (Table 1) ranges from 2.23 to 14.6 in Ethiopia [68-75] to Pregnancies lost before 42 days are usually referred to as early embryonic deaths, whereas a calf that is born dead between 260 days and full term is defined as stillbirth [6]. Economically, abortion is of a great concern to the farmer because after losing the fetus a prolonged period of uterine disease and sterility may follow.

Infectious Causes of Abortion: Brucellosis, leptospirosis and campylobacteriosis (Vibriosis) have been considered as the main bacterial diseases that cause reproductive problems in cattle. Trichomoniasis is a protozoan disease that causes endometritis, pyometra, abortion and sterility [7]. Furthermore, viral infections, which cause reproductive problems in bovines, are herpes viruses 1 and 4, bovine virus diarrhea (BVD) and parainflunza 3. These can cause infertility through fertilization failure, embryo mortality and abortion [8].

Mycotic or Fungal and Protozoal: Either mycostic infections such as aspergillus spp, Mucorals spp (including, Absidia, mucor, Rhizopus and yeast) or
Table 1: The prevalence of abortion in Ethiopia

<table>
<thead>
<tr>
<th>Study area</th>
<th>Prevalence rate (%)</th>
<th>Sources</th>
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<tbody>
<tr>
<td>Northern Ethiopia</td>
<td>6.1</td>
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<td>Nazrett</td>
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<td>In and Around Asella town</td>
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<td>Hosanna</td>
<td>2.56</td>
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</tr>
<tr>
<td>In around Fitche Town</td>
<td>8.4</td>
<td>Dufera et al. [75]</td>
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</table>

Table 2: The prevalence of vaginal prolapse in Ethiopia

<table>
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<tr>
<td>Kombolcha</td>
<td>1.24</td>
<td>Dawite and Ahmed [68]</td>
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<td>In and Around Wukro</td>
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<td>Hosana</td>
<td>3.44</td>
<td>Adane et al. [69]</td>
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protozoal infestation such as trichomoniasis, toxoplasmosis, neosporosis, trypanosomosis, babesiosis or piroplasmosis cause abortion [9].

**Non Infectious Causes of Abortion:** Factors that were previously found to influence foetus mortality include maternal age [10], environmental factors [11], hormonal imbalance [12], uterine environment [13], iatrogenic as Palpated per rectum [14], insemination of pregnant cows [15] and prostaglandin F-2α administration [16].

**Nutritional:** Starvation may result in placental insufficiency and abortion, though it is rarely observed in modern dairy practice. Vitamin A deficiency has been suggested to result in thickening and degeneration of placenta and abortion in late gestation. Iodine deficiency has also been suggested to cause abortion. High concentration of nitrates in plants/weeds can induce abortion from 3 to 9 months of gestation. Ergot can cause placental necrosis, fetal death and abortion. Warfarin and coumarone can also cause abortion. Pine needles and locoweeds can cause abortion depending on the stage and the amount consumed [17].

**Physical and Genetic/Chromosomal:** Douching, infusing or insemination of the pregnant uterus, rupture of the amniotic vesicle and/or trauma to embryo, removal of the corpus luteum, torsion of the uterus or umbilical cord, marked stress, severe fatigue due to transport, work, severe systemic disease, or major operations. Certain defects of the embryo or fetus; twinning, allergies and anaphylactic reactions, tumors are some genetic causes of abortion [18].

**Diagnosing Abortion Problems:** In some situations, the prompt diagnosis of an abortion may help in reducing the severity of an impending outbreak. Well-kept records can be very useful in the investigation of an abortion problem. When collecting samples which will be used to diagnose the cause of an abortion the whole fetus and placenta should be kept in a clean bag, which should then be refrigerated as soon as possible. In some situations, paired blood samples may also help to diagnose an active infection in the cow, such as BVD or leptospirosis.

**Preventing Abortion Problems:** Sound herd health management practices will go a long way toward preventing abortion problems. Basic biosecurity practices are those practices which minimize the risk of introducing diseases onto the farm and the spread of disease within the herd. This may include such measures as quarantining purchased cattle for a period of time, or maintaining a completely closed herd. Visitors to the farm should wear clean protective clothing and to disinfect footwear and any equipment that may have been in contact with other cattle. Maintaining the general health and immune function of the cattle is also important in minimizing the risk of abortion problems. Although vaccination is not a remedy for poor management, it is an integral component of a complete herd health program. Finally, special attention should be focused on the health status of bulls in herds that utilize bulls in their lactating cow or heifer herds. Bulls should be purchased only from herds that have a good herd health program in place and whose health status is known.

**Vaginal Prolapse:** The protrusion of the vagina and sometimes with the cervix through the vulva [19, 20]. Vaginal prolapsed is the protrusion of the vagina and sometimes with the cervix through the vulva. The prevalence of vaginal prolapse (Table 2) ranges from 1.24 to 5.2 in Ethiopia. Generally, vaginal prolapse occurs before calving due to the increased pressure in the abdominal cavity during the latter stages of pregnancy. This type of prolapsed typically looks like a pink mass of tissue about the size of a large grapefruit or volleyball. Once this tissue becomes prolapsed, it is exposed to environmental elements (Wind, dust, sun, injury) and to potential organisms. In extreme cases the entire vagina may prolapse with the cervix displaying itself at the most caudal part of the prolapse (Figure 1). A spontaneous rupture of the vaginal wall with herniation of the intestines, bladder or uterus, therefore also belongs on the list of complications to be associated with vaginal prolapse [21].
Hormonal Causes: With vaginal prolapse most frequently occurring during the last trimester of pregnancy, it is believed that the hormonal alterations taking place at this stage are of primary importance in facilitating vaginal prolapse [22].

Relaxation of the pelvic ligaments and surrounding soft tissue structures is a gradually occurring process during pregnancy but becomes far more outspoken towards the end of gestation due to rising estrogen levels in combination with the production of relaxin. The practice of administering exogenous progesterone to avoid vaginal and cervical prolapse, implies that sufficient levels of progesterone are important in the prevention of vaginal prolapse [23].

Hereditary or Genetic Cause: Vaginal prolapse is a hereditary trait located on the X chromosome and is more specifically in gene coding region y. The occurrence of vaginal prolapse has a genetic predisposition in Brahman crossbreds and Hereford cattle [24].

Nutritional Cause: Nutrition is common factor contributing to the prevalence of vaginal prolapse. More specifically, poor quality forage, high levels of concentrate, high estrogenic-content feeds and hypocalcaemia have all been associated with the pathology. Moreover, feeding of concentrates and overfeeding lead to ruminal acidosis [25].

Replacement of Vaginal Prolapses: If the prolapse is fresh and the vaginal mucosa is in good condition, the most appropriate fixation technique by raising the hind quarter, Dalton spoon or placing the patient in a harness may be effective. In many cases, even when deciding to simple reposition the vaginal prolapse without the intention to utilize a more, can advised, as, it also combats the direct reoccurrence. Buhner sutures is the best method for retaining a vaginal prolapse [26].

For stabilize the chronic vaginal prolapse, the ventral vaginal wall needed excessive redundancy by performing a cervicopexy [27].

Uterine Prolapse: The coming out of uterus through the vulva shortly after parturition and hanged out with the inner surface becomes outer most [19, 28]. Various predisposing factors causes uterine prolapse in the cow including hypocalcaemia, prolonged dystocia, fetal traction, fetal oversize, retained fetal membranes, chronic disease and paresis. Immediately after prolapse, the tissues appear almost normal (Figure 2), but within a few hours they become enlarged and edematous. Some animals will develop hypo-volaemic shock secondary to internal blood loss, laceration of the prolapsed organ or incarceration of abdominal viscera [29].

Exact etiology of uterine prolapse is ambiguous [30]. Uterine prolapse is regarded as a veterinary emergency because without treatment, the cow will likely to die [31].

Clinical Management and Replacement of Uterine Prolapse: Considering the severity of the case and owner’s agreement, the prolapsed mass should be washed carefully with warm saline. The fetal membranes were detached manually with fingertips from the maternal caruncles avoiding bleeding. Then the uterine mass is again washed with saline and finally with 1:1000 potassium permanganate solution. Then it is replaced to its normal anatomical position. To prevent further complications, intra uterine antibiotic treatment is also recommended. Then the purse string suture with sterile cotton thread around anterior vagina can be performed. The method of raising the rear end of the cow using a tractor was reported as a quick, easy and essentially practical method of dealing with a prolapsed uterus [32].
**Treatment Considerations:** Although various methods of treatment of prolapsed uterus were presented, no reports have been carried out to compare the results between each treatment method. Uterine prolapse in cattle may be treated by reduction or amputation. Euthanasia is the only option, where hemorrhage or other factors have resulted in a state of irreversible shock [29].

**Endometritis:** Endometritis is inflammation of the endometrium, characterized by reddish brown, whitish to yellow mucopurulent fetid vaginal discharge along with thickness of uterine wall detected via intra-rectal palpation [1, 2]. Endometritis is classified into either acute or chronic.

**Acute Metritis:** Acute metritis is also referred as postpartum metritis, toxic puerperal metritis or septic metritis and occurs within the first 10 days after parturition. It is characterized by fetid, watery and reddish-brown to purulent vulvar discharge and an elevated body temperature that may reach 39.5°C [33]. Risk factors for acute metritis were categorized into uterine damages that resulted from Stillbirth, dystocia, twins, cesarean section, retained placenta, delayed uterine involution, or metabolic conditions that resulted from Milk fever, ketosis, left displaced abomasums. Moreover, the balance between pathogenicity and immunity such as disruption of neutrophil function, type of bacterial flora, progesterone and glucocorticoide administration, early formation of a corpus luteum, level of hygiene also causes metritis. The pathogenic species isolated from metritis and the uterine cavity are *E.coli*, *A.pyogenes* and obligate anaerobic species *F.necrophorum* and *Prevotella spp* [34].

**Antibiotic Treatment of Acute Metritis:** The ideal treatment of metritis should eliminate bacteria from the uterine cavity and the sub endometrial layers without inhibiting uterine defense mechanisms. It should provide optimal reproductive performance in the current lactation and not cause economic losses by milk withdrawal. The efficacy of a systemic administration of penicillin, oxytetracycline, or cefiofur in cows with acute metritis or retained fetal membranes, often associated with acute metritis, has been demonstrated in several studies with regard to clinical cure rates and reproductive performance. Cefiofur concentrations exceeded the minimum inhibitory concentration (MIC90) for *A. pyogenes*, *E. coli*, *F. necrophorum* in blood and endometrial tissue within two hours after administration [35].

**Chronic Endometritis:** Chronic endometritis (Table 3) is also referred to as clinical endometritis and is characterized by the presence of mucopurulent or purulent exudates in the vagina three weeks or more after parturition. Rectal palpation as well as vaginoscopy are indirect diagnostic methods and cannot verify the inflammation of the uterus itself. Uterine swabs for microbiology as a routine diagnostic tool for chronic endometritis is not practical and associated with high costs. Common bacteria isolated from cows with chronic endometritis are *A. pyogenes*, *E. coli*, as well as *F.necrophorum* and *Prevotella species*. Infections with *Chlamydophila spp* can also result in chronic endometritis [33].

Diagnosis should be performed three to four weeks after calving. The impact of chronic endometritis on reproductive performance is characterized by decreased service and conception rates and consequently prolonged days to first service, days open and intercalving interval. Commonly, the decreased of the pregnant number cows results from the increased culling rate of infertile cows due to chronic endometritis [36].

**Treatment of Chronic Endometritis:** In general, the treatment of chronic endometritis is based on two different strategies, i.e. an intrauterine treatment with antibiotics or a systemic treatment with prostaglandin F₂α [37].

**Retained Fetal Membrane:** Retained fetal membrane (Table 4) is a lack of expulsion of the fetal membrane with in the first 24 hours after calving [1, 2]. The fetal membranes or what is called “placenta” is the name given to the membranes that transfer nutrients from the dam to the fetus before birth, which are the necessary components of life [38].

When the fetus is born, the placenta normally detaches within short time and is expelled. That is why it is referred to as the “afterbirth”. The release of fetal membranes fetomaternal adherence, combined with
Table 4: The prevalence of Retained fetal membranes in Ethiopia

<table>
<thead>
<tr>
<th>Study area</th>
<th>Prevalence rate (%)</th>
<th>Sources</th>
</tr>
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<tbody>
<tr>
<td>Northern Ethiopia</td>
<td>16.8</td>
<td>Gebremariam [70]</td>
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<td>Kombolcha</td>
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<td>Ebrahim [78]</td>
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<td>Debrezet</td>
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<td>14.3</td>
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<td>Jimma town</td>
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<td>Central Ethiopia</td>
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<td>Hosanna</td>
<td>7.18</td>
<td>Adane et al. [69]</td>
</tr>
<tr>
<td>In and around Fitche Town</td>
<td>12.6</td>
<td>Dufera et al. [75]</td>
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contraction of uterine musculature. It is the third stage of labor and is usually accomplished within 6 hours of calving [39].

Causes of Retained Fetal Membrane

Hereditary Causes of Retained Fetal Membrane: Recent study carried out on a herd of Friesian cows reared at lower Egypt reported that cows having blood group genotype BGKoX A’O’ breed with sire have I’ genotype dropped their placenta normally, while cows having BO 3Y2AE’ 3G’P’ genotype bred with sire having genotype I2 showing high incidence of retained placenta (RP). On the other hand, the most frequent alleles in serum proteins of NRP cows were albumin (ALA), post albumin (PalA) and amylase (AmB) gene markers, while the most frequent genetic alleles in serum proteins of RP cows were alpha globulin (F2A) and transferrin D (TFD). Moreover, it was recommended to use the above mentioned genetic constituents of both dam and sir for breeding purposes [40].

Defective Hormonal Function: Placental separation occurs when fetal cortisol induces the production of the enzymes, 17 -hydroxylase and aromatase in the placenta which favor estrogen synthesis at the expense of progesterone synthesis. Maternal plasma levels of oestradiol-17 increase suddenly, while plasma levels of progesterone decline sharply immediately prior to parturition. It is supposed during the week before parturition, the level of estradiol reaches its maximum level to help the uterus to get rid of any remnant of fetal membranes. Therefore, a decreased level of estrogen may be indicated as a factor enhancing retained placenta [41].

Managemental Causes of Retained Fetal Membrane: Myometrium contractility is the third component of self defense mechanisms, since uterus contractions expel the uterine content. Lack of exercise and hypocalaemia are the most frequent causes of decreased myometrium contractility. However, Bajcsy et al. [42] reported no correlation between blood ionized calcium (ca+2) concentrations and any of the contractility parameters. Also, the lack of uterine motility plays little or no role in the occurrence of retained placenta. Moreover, cows with retained placenta have normal or increased uterine activity in the days after calving [43].

Failure of Maternal Immune Response: Maternal immunological recognition of fetal MHC class I proteins expressed by trophoblast cells triggers an immune/inflammatory response that contributes to placental separation. This lymphocytic activation was suppressed at the fetal maternal interface alongside the pregnancy course to avoid rejection of fetal allograft, where the trophoblast secretes interferon-tau (IFN) and both trophoblast and endometrium secrete prostaglandin E2 and the endometrial glands secrete serpins (Uterine milk proteins), all of which inhibit lymphocyte activation to keep on the embryo not rejected by the dam. Furthermore, for successful non-classical pregnancy, class I MHC antigens expressed by trophoblasts prevent maternal NK- mediated cytotoxic responses [44].

The increased cortisol concentrations in cows that developed retained fetal membrane has immunosuppressive and inhibitory effects on leukocyte migratory activity. Preparturient endocrine changes are supposed to interfere with the innate immunity of the dam [45]. High progesterone and cortisol levels in the blood in stressed cows may induce the accumulation of immunosuppressive proteins in the uterine lumen which make the uterus susceptible to infection and persistence of bacteria [46].

Mechanical Causes of Retained Fetal Membrane: Difficult birth (Calf too large for cow, backwards calf known as breech birth, one leg or head backwards), twins, late or premature birth, prenatal loss, induction of parturition with PGF2α, cesarean section and fetal monsters or emphysematous fetus (Gas-filled fetus) directly causes dystocia and retained placenta [47].

Nutritional Causes of Retained Fetal Membrane: Vitamin and mineral deficiency conditions such as selenium, vitamin E and vitamin A, carotene and disturbed Ca/P (1.5/1) ratio can impair general immunity and may alter the competence of cellular self-defense mechanism and can increase the risk for placental retention and metritis. High milking cows with a greater degree of negative energy balance prepartum and higher NEFA concentrations were 80% more likely to suffer from retained fetal membrane.
Optimal Strategies for the Management of Herds with Retained Fetal Membrane: As the noninfectious causes of placental retention is multifactorial and difficult to be diagnosed, especial care should be paid for control measures rather than treatment protocols. The genetic aspect should be put in consideration to by selecting animals having the minimal probability for the occurrence of retained placenta. Advisors such as nutritionalists are needed beside the veterinary services. Supplementation with balanced vitamin and mineral mixture in prepartum period is considered a prophylactic step to avoid fetal membrane retention [48].

Treatment: Treatment of retained fetal membranes by manual removal, the use of hormones or antibiotics, injection of collagenase enzyme and using hyper osmotic solutions could be tried. Inflammation from chemicals can be more harmful on the animal versus non-treatment. Injection of collagenase into the umbilical arteries of the retained fetal membranes is beneficial since it targets the lack of cotyledon proteolysis. Collagenase is superior with its ability to breakdown different types of collagen tissue, affordability, commercial availability and causes no blood clotting in the placenta. Such treatment proved effective in 85% of affected cows within 36 hours [49].

Cows that fail to respond to collagenase treatment (15%), could be subjected to another treatment protocol and retreatment with the same enzyme is not recommended because it rarely is effective [49].

Dystocia: Dystocia is defined as a difficult birth (Table 5) resulting in prolonged calving or severe assisted extraction of the calf at birth. A condition in which the first or especially the second stage of parturition was prolonged markedly for more than 6 h and the cow required assistance [19, 20, 50]. When referring to problems at calving, it is important to note the difference between dystocia and assisted birth. Assisted birth is defined as a birth in which assistance is required (e.g., only one foot of the calf is visible outside the vulva), but this may not necessarily result in dystocia. In practice, as soon as the mal-positions are corrected, the cow may complete the delivery normally or with minimal assistance. Dystocia increases the incidence of stillbirth and calf mortality within 30 days post calving [51]. In addition, dystocia increases the likelihood of trauma on the dam (i.e., paresis), uterine disorders and decreased milk yield [52].

Causes of Dystocia: The introduction of large sized beef bulls like Holstein Friesian bulls in dairy cows has resulted in an increased incidence of dystocia, probably due to an increase in the body weight of the calf and the change in its shape [53]. Dystocia can be caused by the dam or by the fetus. The three maternal causes of dystocia are: primary uterine inertia, secondary uterine inertia and abnormalities of the birth canal. In primary uterine inertia the myometrium experiences failure to contract which is caused by overstretching of the uterus and periparturient hypocalcaemia (Low blood calcium before and after parturition). Secondary uterine inertia is caused by collapse of the myometrium due to several failed attempts of delivery of the fetus. Abnormalities of the birth canal include: pelvic deformities, deficient size of maternal pelvis or dilation of cervix, hernia of bladder, tumor on vulva or vagina, or uterine torsion. Fetal causes of dystocia include: abnormal fetal presentation or position, fetal monsters, persomus elumbus and fetal oversize. An abnormal fetal position is described as any position that is not in the “cranial longitudinal presentation and in dorso sacral position, with the head, neck and fore limbs extended [49].

Prevention and Management: Prevention of dystocia should be of top priority in dairy herds. The use of tested sires for their ease of calving (Calves with low birth weight), especially for first calf heifers, is an essential management tool to minimize dystocia and stillbirth. Animals that show excessive body condition or excessive weight loss during the last trimester of pregnancy are prone to dystocia. Therefore, appropriate nutrition management of cows during pregnancy, removal of heifers with small pelvic areas and the use of proven sires known for their calving ease at time of artificial insemination have the potential to significantly reduce dystocia and is negatively effecting the commercial of dairy herds [30]. The dairy producer cannot totally abolish dystocia from his or her herd, but they can help reduce its
Table 6: The prevalence of anoestrous problems in Ethiopia

<table>
<thead>
<tr>
<th>Study area</th>
<th>Prevalence rate (%)</th>
<th>Sources</th>
</tr>
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<tbody>
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<td>16.4 to 24</td>
<td>Darwo and Zerbini [85]</td>
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<tr>
<td>Alage dairy farm</td>
<td>10.2</td>
<td>Amene [79]</td>
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<tr>
<td>Debre Zeit</td>
<td>16.4 to 24</td>
<td>Befekadu [86]</td>
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<td>Central Ethiopia</td>
<td>12.5</td>
<td>Hadush et al. [73]</td>
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<td>Hosanna</td>
<td>12.06</td>
<td>Adane et al. [69]</td>
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Table 7: The prevalence of repeat breeding in Ethiopia

<table>
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<td>Micheal [77]</td>
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<tr>
<td>Alage dairy farm</td>
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<td>Amene [79]</td>
</tr>
<tr>
<td>Central Ethiopia</td>
<td>10.6</td>
<td>Hadush et al. [73]</td>
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<td>Hosanna</td>
<td>13.08</td>
<td>Adane et al. [69]</td>
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<tr>
<td>In and around Fitche Town</td>
<td>14</td>
<td>Dufere et al. [75]</td>
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occurrence by implementing appropriate management of their heifers and cows during gestation and after parturition [51].

Anoestrus: Anoestrous cows are those cows that failed to show clinical heat signs for 90 days (Table 6) or more after parturition [1, 2, 54]. While estrus is defined as a type of sexual behavior near the time of ovulation, characterized by the acceptance of the male, anoestrus indicates the lack of this typical estrus expression at an expected time. Anoestrus is a normal phenomenon in association with some physiological conditions (e.g., before puberty and during pregnancy). In fact, post-partum anoestrus can be defined as the lack of estrus symptoms (Despite very effective estrus detection) within a certain period after calving, while normal cows in exactly the same conditions already have been seen in heat. Anoestrus cannot be regarded as a disease but is rather a sign or a symptom of some suboptimal (e.g., management or nutrition) or pathological (e.g., chronic debilitating diseases or uterine and ovarian diseases) conditions. There is a general agreement that in dairy cows the anoestrus period after calving should not exceed 60 days [55].

Causes of Anoestrus: The four main causes of anoestrus in the post-partum cow are sub estrus, unobserved or silent heat and true anoestrus result from inactive ovaries or ovaries with slight follicular activity, pyometra or prolonged luteal activity and cystic ovarian disease and pregnancy [56].

Diagnosis: When dealing with a cow not seen in heat 2 months after calving, it is the task of the veterinarian to make a diagnosis of the cause of this symptom, in order to treat the cow and to prevent a too long calving interval. This diagnosis should be based on the anamnesis, a general clinical examination and an accurate gynecological examination based on rectal palpation of the ovaries and the tubular genitalia, eventually aided by a vaginoscopic examination. Although rectal palpation is a valuable and cheap technique which is often accepted as the most important examination technique, it should be kept in mind that its accuracy is limited [57]. Per rectum examination of the ovaries is a poor method for assessing ovarian function, leading to misdiagnosis and the administration of inappropriate and unnecessary hormonal treatments. In some cases, repeated rectal palpation or more accurate techniques such as ultrasound imaging or progesterone analysis in milk or blood may be required. It has been demonstrated that with the help of progesterone analysis on the day of the clinical examination 41% of the incorrect diagnoses can be avoided [58].

Treatment: Although a wide range of hormonal treatments has been used, the results of these treatments are unsatisfactory and economically unsound. In too many instances hormones are used in an attempt to correct management factors and should therefore be approached with caution [59]. Hormonal therapy should be reserved for individual anoestrous cows which are not seen in heat during the first 60 to 70 days after parturition. If pyometra is diagnosed, the first action is to treat pyometra by an injection with prostaglandins. This treatment causes a regression of the persistent corpus luteum and induces estrus and ovulation, which leads to the evacuation of the abnormal uterine content and an enhancement of uterine defense mechanisms [60].

Repeat Breeding: A cow or a heifer that failed to conceive (Table 7) for three or more consecutive services time [3, 19, 20, 27]. The repeat breeding cow is one that has clinically normal reproductive tract with normal or nearly normal estrous cycles and estrus periods and has been breed two or more times to a fertile bull/inseminations with fertile semen but failed to conceive. Repeat breeder syndrome is a major source of economic waste in dairy herds [61, 62].

Causes of Repeat Breeding: Repeat breeding is a real problem. The first step for improving it is to eliminate and deal with it’s the cause or causes. Unfortunately this can be a difficult task since many factors can and frequently contribute to a failure to conceive or maintain pregnancy. Furthermore, the cause may be a herd problem or a variety of individual cow problems.
Inadequate Estrous Detection, Semen and Insemination Techniques: Inadequate semen quality, insufficient numbers of sperm, improper insemination techniques, infertile bull, in improper timing of insemination in relation to the onset of standing estrus and insemination of cows improperly detected in estrus [63].

Cow Factors: Generally infections and inflammation of the reproductive tract such as metritis and/or endometritis (Uterine infections), cervicitis and/or vaginitis, cervical/vaginal infections hinder conception and prevent implantation [64]. Endocrine (Hormonal) disorders such as cystic ovaries also cause irregular or short cycles, in addition, delayed ovulation, ovulation disorders including obstructed oviducts, defective ova, anatomical defects of the reproductive tract, early embryonic death may also cause abnormally long cycles and obscure time of insemination. Age of the cow and nutritional condition must be also considered [65].

Diagnosis: For proper treatment of a repeat breeder cow, the treatment depend on good heat detection can help determine if the cows are cycling normally but not getting pregnant and good records are important for quick reference and review of herd performance throughout each year to determine a cow’s reproductive behavior (Diagnosis of repeat breeding cow).

Treatments of Repeat Breeder Cow: Specific treatments for 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 percent 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. An abnormal uterine environment may cause repeat breeding and endometritis is one of the most important causes; therefore, improvement of the intrauterine environment for embryo survival is the basis of different therapeutic methods [66, 67].

Veterinarians must identify and treat uterine diseases efficiently in order to limit their negative effects on fertility or administer 1500 IU of luteinizing hormone to stimulate ovulation. Skip the AI; administer 1 million units of penicillin in saline twice at 12 hours interval during estrus. Also, Flushing the uterus with normal saline with moderate pressure is recommended to remove cellular debris/ mild blocks in oviducts. Sexual rest for two consecutive cycles and breeding may be advised [34]. After correcting a repeat breeding problem it is necessary to continually monitor conditions in the herd to ensure that the problem is not recurring. Consequently, the organized reproductive program and records must be kept up-to-date to allow for ongoing evaluation of the herd’s reproductive performance.

Status of Reproductive Health Problems in Ethiopia:

Studies on the prevalence of major reproductive health problems in Ethiopia have been carried out in different parts of the country (Table 1-7). The prevalence rate of 0.56% and 0.76% were recorded by Dawite and Ahmed [68] and Adane et al. [69].

CONCLUSION

Reproductive health problems are one of the bottle necks of dairy industry. Reproductive health problems remain a complex entity and its diagnosis and treatment is an increasing veterinary challenge. There is thus a greater need for farmers, researchers and dairy veterinarians to adapt new strategies with the aim of reducing the incidences of reproductive health problems such as: Dystocia, Repeat breeder, Uterine prolapse, Abortion, Vaginal prolapse, Endometritis, Anoestrus, Retained fetal membrane and also others contributing to declining fertility in dairy herds. Early diagnosis and treatment of reproductive health problems represent a major step towards reversing the declining trend in dairy herd fertility. Overall, it is the dairy producer’s responsibility to have a sufficient management program in place to treat and prevent the reproductive diseases of the herd in order to optimize maximum productivity.

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