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Effect of Sperm Quality of Beef Cattle on Fertility Percentage

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Abstract: ***Pregnancy rate evaluation of the profitability of any beef cattle operations, the profit or loss is one of the most important factors determining. Emphasis and focus on adequate nutrition and reproductive management beef cattle herd, but, unfortunately, most placed little emphasis on beef cattle operations kept. However, each beef cattle breeding season during a typical cow-calf operation in 15-40 women is expected to and rife Thus, The fertility of the Bull is truly "personal" cow fertility is much greater consequences. too often range is given for fertility Bull, and genuine care and management of the bulls during breeding season an inconvenience rather than a cow herd management program is considered an important part of Coulter (1992) range of 18-30 percent of bulls were reproductively and many more were barely enough Reported. Typical characteristics such as Bull selection normally breeding soundness examination (BSE) and a koshiya perimeter and fertility focused less on places to score.***

Keywords: Effect of sperms quality, beef cattle's, cattle fertility percentage, breeding soundness, sperm defects

1. Introduction

Sperm quality effect on fertility has been documented in many research studies. The impact on fertility rates of the first two tables illustrates the semen quality. table 1 shows that the bulls as satisfying was the first service conception rate a 60 percent classified, categorized them while a 30 percent first service conception rate was unsatisfactory in (table 2), With 80 percent by Bull Witbank that semen was classified as having to work or more normal sperm, Pregnancy rates in mated cows, 91, 5% 26 randomly selected bulls 86 percent average that can mean the difference magnitude smaller, but financially a cow-calf operation, it is dangerous is the fact that very large NAHMS national beef survey (1993) reports that only 30 percent of semen cow calf operations mature bulls, And 40 percent of yearling bull semen is checked.

There is no doubt that individual difference in fertility between bulls. A recent review (flowers, 2013), the whole herd of fertility in general categories for those men was compared to report for maximum reproductive male beef cattle. Vs. flock was similar to the latter was reduced to minimum fertility. Since With low fertility, the bulls are often used as though, that contributes to significantly beef Bull fertility failures were thriving. However, dairy cattle, the same minimums were to herd and bull, the herd of bulls crossed for maximum fertility. Therefore, it was concluded that fertility in dairy cattle Bull cow than failure to due.

In General, an individual cow fertility than an individual Bull and more importantly as a bull breed with natural service to 40 women, or possibly hundreds of thousands through artificial insemination can be used although the bulls 20 40% of fertility may be reduced Some are completely sterile. calving season delay, prolong pregnancies Sub fertile Bull, calf weight at weaning, and thus resulting in economic losses and threatening the stability of a livestock operation culled, Besides, the increase in the number of women infertile Bull breeding, animal welfare due to repeated adverse effects may be delayed and calving. Multiple-sire breeding groups such as some management practices, while low pressure, and extended breeding season breeding sub fertile is difficult to identify a single Bull-Mr mating groups, short breeding season, and other artificial insemination Bull fertility strategies is to evaluate critically the need is highlighted.

Factors affecting semen fertility research data in the evaluation of, other factors have more impact on fertility than some personal semen symptoms appear. Florida and Alberta studies, individual characteristics semen fertility was assessed for their relationship.

Florida study (Larsen et al. 1990), semen, sperm motility, density and percentage total coiled tails only personal characteristics were correlated with pregnancy rates semen. Alberta study (Coulter and Koru, 1989), were the primary semen abnormalities

With the rate of positive pregnancy, but not sperm motility and semen scores correlated to the magnitude. And a koshiya use perimeter data if a single factor to determine the fertility of young bulls being used andakoshiya for perimeter (Brinks, 1989) for best single criterion may not only in sexual maturity a bull andakoshiya perimeter early beginning highly related, but it is also very positive characteristics correlated to seminal, And improve overall reproductive efficiency of cows herd provides the ability to; It is highly correlated to the beginning of puberty in their daughters and, based on recent research, related to the early beginning in the womb daughter

Table 1. Effect of Semen Quality on Conception Rate.[a]
Dr. Wiltbank's data used to estimate semen quality classification

No. of Bulls	(%)	Semen Classification	Conception Rate	(Range)
29	(57)	Satisfactory	60%	(14-100)
11	(22)	Questionable	48%	(31-57)
11	(22)	Unsatisfactory	30%	(0-69)

Table 2. Effect of Bulls Selected for Semen Quality on Pregnancy Rates

	Multiple Sire--2-year Summary[a]	
	Control[b]	80%[c] or over
Pregnant (%)	86	91.5

[a] 4 bulls per 100 cows.
[b] 26 bulls randomly selected from original group of bulls.
[c] 27 bulls evaluated to have over 80% normal sperm.

2. Evaluation of Breeding Soundness

There are two common ways to assess potential breeding bull soundness of normal, fertile women and pregnancy/calving rates to determine or to a breeding soundness evaluation conducted by a large number of either are breeding although a fertility test is the ultimate test of fertility, especially fertility is poor so is expensive, therefore, it is strongly before breeding season a standard breeding soundness evaluation is recommended to conduct these With the heavy losses of Bull fertility evaluations to identify, But they do not identify consistently sub fertile Bull. in that regard that the minimum quality standards that 20 to 25% points (Larsen and Miller, 2000), can result in pregnancy rates varied by as frozen-thawed semen standard end points get semen using artificial insemination bulls commercial centers identify grossly abnormal semen but constantly sub fertile Bull apparently normal semen (Gadea et al., 2004) identified with no bull fertility factors is influenced by a wide range of, since Although tests may be a proper combination of more informative (Kastelic and Thundathil, 2008) there is no single diagnostic test can predict the right fertility,. Based on the work in the insemination Boars after a sperm-oviduct dialogue a means of assessing the extent of fertility (flowers, 2013) the ability to be seminal plasma proteins apparently potential fertility is as predictors, and more than 400 sperm plasma membrane protein a Bull has been identified in part.

Society for Theriogenology standards a bull 25 healthy, female a 65-to 70-day breeding season likely establishment of pregnancy in cycling in assessment are intended to meet the health and structural soundness classification ox., sperm motility (≥ 30% progressively motile sperm), sperm akariki (≥ 70% normal and ≤ 20% defective head) and is based on the minimum standards for perimeter andakoshiya. Higher paired testicular weight which, in turn, Positive daily sperm production and semen quality is correlated with correlated with. In that regard, the bulls big testes with more and better quality sperm, as normal production in addition, large testes with Bulls women's siblings and daughters is better with puberty and fertility in young andakoshiya ~ 0.5 heritability. Bull since, to select responds well.

Compensable & UN compensable sperm defects

There are several systems of classifying sperm abnormalities, and compensable and dividing in a practical approach that UN compensable defect (Amman and DeJarnette, reviewed in 2012) is gaining popularity. Used for artificial insemination of Compensable abnormalities the doses can be overcome by increasing therefore access these abnormalities and penetrating the zone pellucid, the sperm to be associated with the trust generally, and as such, the sperm mobility, Cell membrane integrity acre some integrity and viability are associated with measures. For example, with sperm macrodomes knobbed or bent tails is not a likely getting its food composting? in contrast, with a male or blame un compensable a increase sperm count improves, meaning that the sperm to start development and fertilization insemination dose fertility are defined as But most of the failures before the 8th day post breeding with embryogenesis, Are unable to maintain these sperm fertilization of, but will be expected to maintain growth as chromosomal abnormalities, procaine mRNA and perhaps position abnormalities of un compensable defects, are believed to be. In addition, such sex selection of flow-increasing the number of sperm sorting UN compensable sperm can make processing laboratory (DeJarnette2005) defects.

Sperm numbers "threshold" is beyond the limits of female fertility sperm fertility, which can cause, or reach UN compensable sperm defects (Amman and DeJarnette, 2012) due to the presence of female fertility levels to pursue a value and fails per dose number conception in which ascendant. Consequently, to a special constable or ejaculate threshold can vary widely and severity of UN compensable and compensable and depends on sperm defects. those that quickly reached a plateau un compensable considered a large proportion of sperm defects, while the male sperm with the rise in the number of fertility is a long linear increase that mainly compensable sperm defects, Considered. Regardless, it would seem that when a compensable attributes 70% of sperm (flowers, 2013) reach their threshold most fertility curves.

Compensable sperm quality characteristics are those that use a sperm's ability to fertilize a getting its food and are therefore, affect mobility, viability, and membrane function of measurement generally compensable sperm quality is used to estimate will be.

Acrosomal integrity and viability of sperm fertility are commonly measured to predict eosin-nigrosin such as live-Acrosomal. Dead stains using a number of suitable optical systems such as differential interference contrast or microscopy can be evaluated without staining stains with. In addition, there are several flow cytometry assessment stains that rapid and objective evaluation to allow large numbers of sperm with, Are able to be made. In addition, often clear semen sperm from fertilizing potential additional manipulations that is concerned and is subject to provide more information. sperm after thawing frozen-thawed often 2-3 hour maintained at 37 ° C for and then evaluated; It mimics the female reproductive tract to risks and latent sperm abnormalities that may not be immediately obvious to locate the facility post-thaw (DeJarnette, 2005). Hypo-osmotic swelling test also, (host) to determine the feasibility of the membrane can be used.

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Testicular temperature
It is well established that from 2 to 6 ° C Bull testes produce fertile sperm to be core body temperature raise testicular temperature, the cooler should be, regardless of the reason, semen quality (Waits, 1970) reduces. Moreover, increased testicular temperature bulls (Kastelic, 2013) are a common underlying cause of infertility.

There are many features in regulating testicular temperature. Andakoshiya skin is usually thin, with short hair and a wide subcutaneous vasculature that promotes heat loss by radiation. Andakoshiya neck scrotum hot part; Andakoshiya neck and a long, separate undecided scrotum a testicular temperature rise in the area for radiation, and testes are enhanced when the ambient temperature to move away from the body to enable reduced. immediately its "testicular vascular cone" above each testicular (Cook et al., 1994), Pampiniform Plexus, a highly coiled testicular complex surrounded by arterial venous network (Figure 1) were included, so that the cone, testicular vascular vein is in the testes in order to reduce the heat transfer of heat from the artery in a classic counter current heat exchanger is the scrotum too high sweat gland density, so sweating and panting like other whole body responses to keep the testes cooler than body temperature.

3. Aims and Objectives

A major objective of each cow to produce cattle annually the degree to which meets these goal producers affects their net income. A high fertility levels in animal breeding herd is a key component of efficient calf production.

Since many female individual Bull service, a reduction in the fertility of bulls is a single female fertility problems have a big impact on productivity of the herd. Can use a sub fertile Bull led to fewer calves produced calving intervals now, and increase the cost of wintering female open. these results for all of the cow-calf producer to a beef Bull cause damage serious economic development goal A bull as a yearling, is capable of reproductive cows is geared at producing the semen quality, Cows and heifers in the summer to seek out physically capable, and physically able to breed women. A proper evaluation, semen quality and physical soundness prior to the breeding season, including all the bulls should be a regular practice.

4. Advantages

1) The degree to which meet this target producers affects their net income.
2) Use a sub fertile Bull lead to longer calving intervals, the number of calves produced and increase the cost of wintering female open. These results all cow-calf producers will cause serious economic loss
3) A bull that has a yearling is capable of reproductive cows as, is able to produce semen quality
4) A proper evaluation, semen quality and physical soundness prior to the breeding season, including all the bulls should be a regular practice.

5. Disadvantages

1) Producers physically sound Bulls with average or above average to select SC and may need more attention
2) Bull's physical condition and the producers to winter nutrition and may need more attention.
3) Provision of adequate shelter and bedding producers and may need more attention.
4) In the winter months short photoperiod also on gonadotropin secretion via may have an adverse effect on spermatogenesis.

6. Methodology

Some of these bulls were older bulls from commercial farms and some were young bulls from stud farms. One veterinarian gathered the data during routine breeding soundness tests. The tests included: Assessment of genitalia, scrotal palpation, measurement of scrotal circumference, serving capability, semen collection and evaluation. It is important to remember that it is rare for any test to establish total infertility of a bull. Normally the bull is found to be permanently sub-fertile and this is enough to classify him as unsound for breeding.

7. Conclusion

Production of sustainable cattle Bull fertility remains important. Although substantial progress Bull breeding, and our ability to identify sub fertile bull to impress in our understanding of the factors, there are still considerable gaps in knowledge. For example, there are excellent fertility as accurately rank the bulls need reliable ways to raise testicular temperature morphologically normal. The production of sperm and to interfere with fertility decreases; although it has been attributed to the prestigious hypoxia pathogenesis, recent evidence of increased testicular temperature effect was consistent with 11.4% of all tests inconclusive turned out and recommended test again. Veterinarians were doubtful whether temporary or permanent structural sperm abnormalities were unsure what the main reason was.

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