



Central Regions PROJECTS

The effect of mating ratios on pregnancy rates in yearling and mixed-age hinds

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Summary

Conception rates in both mixed age and yearling hinds on the Shaw's property have been below targets for three consecutive years. There are several things that may contribute to this and one that was suggested at the Advance Party meeting was mating management. In particular hinds have been mated with two stags to 100 hinds with no stag rotation. It was suggested that this could contribute to lower conception rates as the stags may expend too much time and energy fighting each other rather than mating hinds. A controlled trial was conducted to test the difference in conception rates between hinds that were mated in a mob of 2 stags to 100 hinds versus single sire mated with a back-up stag. There was no difference in conception rate between these groups (95.5% versus 96.5%, respectively). This conception rate was significantly greater than the past three years (82%, 85% and 80%). Factors other than mating ratio are likely to have caused the improved conception rate, although mating ratio could not be completely ruled out. Yearling hinds were mated with yearling stags at a ratio of 1:4 stags to hinds. The conception rate in this mob was 83% compared to 62, 44, and 22% in previous years when yearlings had been single sire mated. Other factors such as genetics and nutrition are likely to have contributed to this improved conception rate.

Aims

To determine whether the mobs of 100:2 hind to stag ratio is a risk for failed conception compared to single sire mating with a backup.

To improve conception rate in yearling hinds by using a high stag:hind ratio and yearling stags.

Introduction

The farm has had a record of conception rates in adult hinds of 82%, 85% and 80% in June of 2012, 2013 and 2014, respectively. It was considered that there is room for improvement in the conception rate in adult hinds and this would increase farm profitability. It is probable that hind body condition and age may have been affecting conception rate but mating ratio may also be a factor. Typically two stags have been used with each mob of about 100 hinds and those stags have been left in for the entire breeding period from 1 March until 1 May. This project aims to test whether running two stags in a mob of 100 hinds is a risk for poor conception by splitting the herd and mating one mob with two stags and two smaller mobs with one stag each (single sire mating), followed by a back-up stag in April.

On this property the yearling hinds have had a conception rates of 64%, 22%, and 44% at pregnancy testing in June in 2012, 2013 and 2014 respectively. It was considered that there is room for improvement in this conception rate. Typically yearling hinds on this property have been mated with a single mature stag. This project aims to compare conception rates from previous years with the current year using spiker stags at a high stag:hind ratio.

Materials and Methods

Adult hinds

After pregnancy testing in 2014, hinds in poor condition or very old hinds were removed from the mob along with those that were not in fawn. This left 198 hinds 2 years and older to be mated. These were split into three groups as shown in Table 1. One of these groups had 95 hinds and was mated with two stags, one group had 51 hinds and was single sire mated and the other group had 52 hinds and was single sire mated. These hinds were randomly allocated to their mating groups according to “first through the gate”.

All hinds were weaned on 1 March 2015 and the stags were put in with their mating groups at this time.

In the single sire mated mobs, the stags were swapped for back-up stags on 10 April.

It was intended that the mob with 2 stags would have no stag rotation, however on 30 March one of the stags was pushed out of the paddock. In order to maintain the integrity of the trial, the one remaining stag in this mob was removed and the two “spare stags” that were to be used as back-ups to the single sire mobs were put in with the 95 hinds. The two

original stags in the mob of 95 were then used as back ups in the single sire mating groups.

Yearling hinds

Forty-four yearling hinds (approximately 15 months old) were selected based on being the biggest of the yearling hinds that did not show any obvious wapiti characteristics. These hinds were weighted in Feb and had an average weight of 98kg with the lightest being 89kg.

Eleven good spiker stags were put in with the yearling hinds in early February

Mob	Tally	1 March	1 March	10 April	1 May	5 June
Yellow	95	Wean	2 x DIL stags (10/840 and 11/166), Swapped for a wapiti and eastern stag on 30 March		All stags removed	All hinds preg test and body condition score
Purple 1	51		DIL (09/655)	10/840		
Purple 2	52		Spiers (04/845)	11/166		
Yearling	44	11 spikers from 1 Feb			10 May	

Pregnancy testing and body condition scoring

Hinds were pregnancy tested on 18 June 2015 and body condition scores were recorded.

Results

Pregnancy test results from the past three years and this year (2015) are presented in Table 2. Detailed results from the 2015 pregnancy testing are shown in Table 3.

Mature hinds

Conception rates in all mobs were higher this year than in the previous three years. There was no difference in conception rate between the mobs that were mated with 2 stags:100 hinds and those that were single sire mated.

Yearling hinds

Conception rate in yearling hinds was significantly greater this year than in previous years (83% versus 62, 44 and 22% in previous years).

year	hinds mated		preg%(scanned preg/ presented)		wean% (wean/set stock scanned preg)	
mate/wean	MA	R2	MA	R2	MA	R2
2012/2013	241	44	82%	64%	89% (217/243)	
2013/2014	213	45	85%	22%	91% (182/199)	
2014/2015	192	50	80%	44%		
2015/2016	198	44	96%	83%		

	Yarded	Scanned	Pregnant	Dry	Late/Cull/ Jumper	Notes
First fawners	44	42	35 (83%)	7	1	
second fawners	25	25	24 (96%)	1	2 (late <4 weeks)	1 dead fetus
2 stags:100	95	89	85 (95.5%)	4	2	
Single Sire (mobs grouped at scanning)	103	87	84 (96.5%)	3	6	
MA total	223	201	96.0%	8	8	
OVERALL total	267	243	93.8%	15	9	

Discussion

The results may be biased in this year as in the previous year (2014) a large number of older hinds and those in poor body condition were culled from the herd. This is likely to increase the whole herd conception rates. The overall condition score was significantly greater at scanning in 2015 compared to the previous year. (3.8 versus 3.1). This is likely to have been the biggest factor affecting conception rate.

Part way during mating, one of the stags in the 2 stags mob was chased out of the paddock. In order to maintain the trial it was decided that two “spare” stags should be put in with the 100 hinds and the remaining stag removed. This unintended change over of stags may have affected the mating patterns. It can not be determined whether this would have helped or hindered conception rates in this mob.

Conception rate in the yearling hinds showed a marked improvement on previous years. This demonstrates that a mating ratio of 1:4 using spikers can result in good conception rates. Results from other farms suggest that there is no advantage in using spikers compared to older stags at much lower stag:hind ratios and some farms achieve good conception rates with single sire mating of yearling hinds. The condition and early socialisation of the yearlings prior to them coming into seasonal oestrus is probably more important than the age of the stags used. While the use of spikers this year appeared to improve conception rates in the yearlings, it has been confounded by other factors, particularly removing any hinds that appeared to have wapiti traits and improved nutrition of the yearling hinds. This needs to be tested further in subsequent years, perhaps by using older stags next year, while maintaining other yearling management factors the same as this year. There are not enough yearling hinds to do a controlled trial with different mating options on this property.

Conclusion

The results of this trial demonstrate that mating ratios are less important than other factors for ensuring good conception rates. Using a ratio of 2:100 can result in good conception rates if stags are changed during mating. Mating ratio is unlikely to have been the cause of low conception rates on this property in the past.

There may still be a risk in using two stags and in larger herds where hinds are not monitored so closely during mating, it is probably still wise to avoid using two stags in a mating mob but using either single sires with a back-up stag or three stags per mating group.