Research Regarding the Influence of Sesonality on the Estrus Induction and Synchronization Treatments with PRID, in Dairy Cows

Ciolac Casiana Șipețan[1], Ioan, Bencsik[1], Dorel Dronca[1], Eliza Simiz[1], Ioan Peț[1], Gabi Dumitrescu[1], Valeriu Carabă[1], Marioara Nicula[*], Adela Marcu[1], Petculescu Ciochină Liliana[1], Mirela Ahmadi[1], Nicolae Păcală[1]

Bat's University of Agricultural Science and Veterinary Medicine, 300645-Timisora, Calea Aradului, 119, Romania

Abstract

The season of performing treatments can affect the results obtained after treatment of induction and synchronization of estrus in dairy cows.

Synchronization treatments were performed with PRID-Intervet, which contains 1.55 grams of progesterone. The devices were inserted in to the vagina and withdrawn after 12 days, in the next five days they found that females were in heat and A. I. The treatments were conducted in the spring season (April-May), summer (July-August) and autumn (September-October).

In spring season the females in heat rate was 70.83%, in summer it was 68.18% and in autumn the rate was 100.0%. Pregnancy rate was 82.35% in spring season, 26.66% in summer and 92.3% in autumn. The best results were obtained in autumn, although the worst in the summer season.

Keywords: milk cows, PRID, seasonal influence, pregnancy rate

1. Introduction

Among the most important factors that influence the rates of entry into estrus cycle and pregnancy rates in cows excluding induction treatment and estrus synchronization can be mentioned: physiological status of females at the beginning of treatment (cyclic or acyclic), early oestrus stage at the beginning of the treatments, female age, calving-treatment interval, food and not at least the season (Grimard et al. 2003) [1]. Knowledge of these factors is important for improving inducing treatments outcomes and timing of estrus.

* Corresponding author: Nicula Marioara
Tel: +40722276322, Email: mnicula@animalsci-tm.ro

The purpose of this research was to determine the influence of season on heat detection rate of cows and pregnancy rates obtained after treatments of inducing and synchronization of estrus with gestagenic hormones.

2. Materials and methods

The experiments were carried out in two dairy farms in Timis County.

The treatments were conducted in the spring season (April-May), 24 of cows, summer (July-August), 22 cows and autumn (September-October), 26 cows.

Treatments for inducing and synchronizing estrus were performed with the PRID-Intervet, containing 1.55 g of progesterone. The devices were inserted into the vagina and withdrawn after

12 days in the next 5 days were detected in heat females and were artificially inseminated. Cows returned in heat were again inseminated. Before the start of the synchronization treatment, transrectal examinations were performed and cows with genital tract infections were removed.

Pregnancy rates were calculated after the first three artificially insemination.

The differences between cows expressed estrus, in the three seasons after treatments of estrus inducing and synchronization as well as pregnancy rates obtained after artificial insemination in cows in the three batches were processed and statistically analyzed.

3. Results and discussion

Most of the dairy farmers use treatments of estrus inducing and synchronization to facilitate the detection of females in heat and perform artificial insemination.

The results are presented in table 1.

Table 1. Seasonal influence on treatments of estrus inducing and synchronization with PRID

Period	N	Females who experienced heat and were inseminated		Pregnant cows	
		n	%	n	%
April-May	24	17	70.83[a]	14	82.35[a]
July-August	22	15	68.18[a]	4	26.66[bB]
September-October	26	26	100.0[b]	24	92.3[aA]
[a-a] p>0.05; [a-b] p<0.01; [A-B] p<0.001					
Females who experienced heat and were inseminated					
			15.07-02.08		20.09–06.10
	30.04–18.05		p=0.845		p=0.003**
	15.07-02.08		-		p=0.002**
Pregnant cows					
			15.07-02.08		20.09–06.10
	30.04–18.05		p=0.002**		p=0.319
	15.07-02.08		-		p=0.000***

Referring to females who expressed heat and were artificially inseminated after treatments of estrus inducing and synchronization, it appears that out of the 24 cows hormone stimulated in the spring season (April-May), 17 cows expressed their heat and artificially inseminated (70.83%). Out of 22 cows hormone stimulated in the summer season (July-August), 15 cows expressed their heat and artificially inseminated (68.18%). Out of the 26 cows that were hormone stimulated in the autumn (September-October) 26 cows expressed their heat and artificially inseminated (100%). Between the heat rates of cows from spring (70.83%) and summer (68.18%) are small differences (p>0.05). Between the heat rates of cows from autumn (100%), spring (70.83%) and summer (68.18%), are large differences (p<0.01).

Regarding pregnancy rates after artificial insemination, it appears that out of the 17 cows inseminated in the spring season, 14 cows (82.35%) remained pregnant, out of the 15 cows inseminated during the summer, 4 cows remained pregnant (26.66%) and of the 26 cows inseminated in autumn, 24 cows remain pregnant (92.3%).

Between pregnancy rates noted in the spring season (82.35%) and autumn (92.3%), there are small differences (p>0.05). Between pregnancy rates noted in the spring season (82.35%) and summer (26.66%), differences are significant (p<0.01). Between pregnancy rates noted in autumn (92.3%) and summer (26.66%), the differences are highly significant (p<0.001).

From the results shown in Table 1, it is noted that the best results were obtained in autumn and the worst during summer season.

Grimard et al. (2003) [1] explain the seasonality effect by the influence of several factors: cows cyclicity before treatment, malnutrition from late winter feeding, alimentation stress by switching to green mass, high summer temperatures. Mialot et

al. (1998) [2] observed that in heat input rates after synchronization treatments with progestagen in autumn, are very high (80%), and pregnancy rates are also very high. Alnimer et al. (2002) [3] did not observe an effect of the season, between winter and summer, after the synchronization treatments with $PgF_2\alpha$ and GnRH.

4. Conclusions

After the treatments of estrus inducing and synchronization with gestagenic hormone (PRID), best results were noted during the autumn season, and the lowest values were in the summer. Between the heat rates of cows from spring (70.83%) and summer (68.18%) are small differences ($p>0.05$). Between the heat rates of cows from autumn (100%), spring (70.83%) and summer (68.18%), are large differences ($p<0.01$). Between pregnancy rates noted in the spring season (82.35%) and autumn (92.3%), there are small differences ($p>0.05$). Between pregnancy rates noted in the spring season (82.35%) and summer (26.66%), differences are significant ($p<0.01$). Between pregnancy rates noted in autumn (92.3%) and summer (26.66%), the differences are highly significant ($p<0.001$).

References

1. Grimard B., P. Humblot, A. A. Ponter, S. Chastant, F. Constant, J. P. Mialot.. Efficacité des traitements de synchronisation des chaleurs chez les bovins, INRA Prod. Anim., 2003, 16(3), 211-227.
2. Mialot J. P., Noel F., Puyalto C., Laumonier G., Sauveroche B., Traitement de l'anoestrus post-partum chez la vache laitière par le CIDR-E ou la prostaglandine F2α, Bulletin Technique des GTV, 1998, 2, 29-38.
3. Alnimer M., De Rosa G., Grasso F., Napolitano F., Bordi A., Effect of climate on the response to three oestrus synchronization techniques in lactating dairy cows. Anim. Reprod. Sci., 200, 271, 157-168