Artificial Insemination using liquid sperm Filial Ongole Bull after sexed with different methods

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Abstract. The purpose of this study was to determine the success of artificial insemination (AI) using liquid sperm Filial Ongole Bulls after sexed by the percoll density gradient centrifugation (PDGC) and egg white sedimentation (EWS) sexed methods. The study materials were 135 cattle were inseminated using non sexed semen, PDGC and EWS sexed methods. Non-return rate (NRR) and the conception rate (CR) are observed. The research design used for the success of AI using chi square. The result of pregnancy examination at the age of 3 months found 21 head of pregnant cows from 45 cattle in AI with without sexed (control), 14 head of pregnant cattle from 45 cattle in the AI with EWS method, 18 head of pregnant cattle from 45 cattle in AI with PDGC method. The result showed that CR value using liquid sperm result of EWS, PDGC and without sexed were very significant (P <0.01). CR value is still higher sperm without sexed (46.67%) followed by PDGC (40%) and EWS (31.11%). The value of conception rate is lower than sexed using PDGC method. The success of AI showed better PDGC sexed method than EWS sexed method based on AI liquid sperm results with CR analysis.

1. Introduction
Artificial Insemination can be increased in value by using the calf program that is produced to have the sex as expected, because it supports the breeding program in the selection of superior seeds [1]. Centrifugation of the percoll density gradient is used as a way of separating sperm X and Y. This is because percoll is a medium that can be made with various densities, does not penetrate cell membranes and has low viscosity [2].

Percol is still imported so that the price is expensive. Therefore, it is necessary to look for alternative other ingredients as a substitute of egg whites. Egg white is often called albumin is part of the egg that serves as an antibacterial and buffer to maintain the physical and chemical properties of eggs [3] is quite effective as a media separation of sperm. Therefore, it is necessary to know how the success of artificial insemination using percoll density gradient centrifugation (PDGC) and egg white sedimentation (EWS) sexed methods in Fillial Ongole bull.
2. Method
The study materials were 135 cattle. Forty-five cattle were inseminated using non sexed semen, 45 cattle were inseminated using PDGC sexed methods, and 45 cattle were inseminated using EWS sexed methods. Non-return rate (NRR) is observed within a period of 20-30 days and the conception rate (CR) is observed with per rectal palpation after 90 days from AI. Artificial Insemination (AI) was done at PT Widodo Makmur Perkasa, Pasir Tengah, Cianjur, West Java. The research design used for the success of AI using chi square. The result of pregnancy examination at the age of 3 months found 21 head of pregnant cows from 45 cattle in AI with without sexed (control), 14 head of pregnant cattle from 45 cattle in the AI with EWS method, 18 head of pregnant cattle from 45 cattle in AI with PDGC method.

3. Results and discussion
Fertility of sperm in AI is assessed through fertilization rates of non-return rate (NRR) and conception rate (CR). The sperm fertilization test was performed with AI using liquid sperm without sexed, under layer EWS sexed and upper layer PDGC sexed on 135 cattle with 45 cattle in a treatment. The results of NRR and CR observations can be seen in Table 1.

| Treatment              | Number of Cattle | NRR Cattle | CR Cattle |
|------------------------|------------------|------------|-----------|
| Non sexed              | 45               | 26         | 57,78     | 21        | 46,67     |
| EWS Sexed Method       | 45               | 27         | 60        | 14        | 31,11     |
| PDGC Sexed Method      | 45               | 27         | 60        | 18        | 40        |

The NRR value of all treatments is still above 50%. The value of NRR is still in good category (> 50%). The results of [4] Bali cattle in the age group of 5-6 years have NRR (77.42%) compared to cattle in the age group of 3-4 year (87.50%). All CR values in cattle inseminated treatment of non-sexed sperm were greater than CR of cattle inseminated sexed sperm. Accurate CR scores can only be demonstrated by examining pregnancy on days 60-90 after insemination. The low value of CR sexed was caused because the spermatozoa membrane can be damaged during the sexed process thereby decreasing the quality of sperm [3].

The result of pregnancy examination (CR) at the age of 3 months found 21 head of pregnant cattle from 45 cattle in AI with non-sexed sperm (control), 14 head of pregnant cattle from 45 head of cattle in AI with EWS sexed sperm, 18 cattle pregnant from 45 cattle in the AI with PDGC sexed sperm. Result of data analysis with Chi-Square test showed that CR value using liquid sperm result of EWS and PDGC sexed method and non-sexed were very significant (P <0.01). The abnormality of PDGC sexed method was 4.42% with 64.25% sperm motility [3].

The existence of cattle that are not pregnant at the time of rectal palpation examination due to short lust 2-3 hours and the existence of silent heat, so need to look directly the quality of lust by looking at the condition of each cattle's vulva. Signs of lust often seen are slimy, swollen, warm, red and swollen vulva. Many cattle have small cervical conditions that cause difficulty in semen deposition. Conception Rate value is still higher than non-sexed sperm (46.67%) followed by PDGC sexed (40%) and EWS sexed (31.11%). The success of fertilization lies in the integrity of sperm acrosomes. However, applications of various reproductive aids technologies such as AI can cause damage to sperm. If the membrane plasma is not functioning completely, the sperm cannot fertilize [5-7].

4. Conclusion
The success of AI showed better PDGC sexed method than EWS sexed method based on AI liquid sperm results with CR analysis. The value of conception rate EWS sexed method is lower than sexed using PDGC method.
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