



A082 FTAI, FTET and AI

Economic impact of artificial insemination and fixed-time AI in dairy herd in acre state

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In the last years, the Artificial Insemination (AI) has been used leading to satisfactory results in dairy farms in Acre, Brazil (Carvalho, Animal Reproduction, v.12, p.649, 2015). However, for effective implementation of a technique, it is necessary not only technical, but also economic feasibility. The aim of this study was to evaluate the economic impact of using AI associated with Fixed-Time AI (FTAI) protocol in a dairy herd consisting of 83 dairy cows, in Feijó City, Acre. The AI and FTAI economic impact was estimated by the economic surplus method (Avila et al., 2008). This methodology compares the effect of the adoption of a technology to the practices and methods that were used previously. The economic benefits are calculated based on the gains generated by the technological innovation discounted of additional costs. For the calculation, two scenarios in the same herd were compared: 1) natural breeding using 1 bull over 12 months with the lactating dairy cows and 2) AI and FTAI for 12 months. In both scenarios it was calculated the interval between parturitions (IBP), % of lactating cows (% LC) and pregnancy rate (PR), maintaining the same animals and conditions of management and feeding. The results for IBP, PR and % LC in scenario 1 and 2 were 18.8 and 14.5 months, 58% and 77% and 47% and 62%, respectively, showing an effective improvement in reproduction efficiency using AI and FTAI. In scenario 1, the cost per pregnancy was R\$14.30. In order to reach this value, it was used the bull purchase cost [R\$ 5,000.00, subtracted R\$ 2,200,00; which is the sale price for slaughter after 5 years of service; divided by the productive life (5 years)]. Additionally, it was included in this amount the maintenance cost of the bull in pasture, medicines and mineral supplements. In scenario 2, the cost per pregnancy was R\$ 96.02, of which 10% were related to the equivalent depreciation cost of the nitrogen cylinder (shared community cylinder with 10 producers); semen (R\$ 18.00 per dose); liquid nitrogen (R\$ 25.00/month); material for IA (R\$ 260.00/year); hormones used in FTAI (R\$ 20.00 per protocol) and technical costs to perform the sync (R\$ 100.00/month). The introduction of AI and FTAI, meant an additional cost of R\$ 4,339.27. However, using this technique, it was possible to increase from 47 to 62 percent of the cows in lactation, yielding 12 more pregnancies, resulting in a subsequent crop over 12 lactating cows. This represents an increase of 13,140 liters of milk in a year (12 lactations of ~ 270 days; 3 liters/cow/day) and therefore an increase of R\$ 13,140.00 in income (milk price = R\$ 1.00). In addition, at the end of weaning, the producer will have 12 calves more for sale, a total of R\$ 7,800.00 in local values. Thus, it is concluded that the AI technique associated with TAI, generates an annual positive economic impact of R \$ 16,600.73 from the 2nd year, since it may increase the number of dairy cows in the next season, allowing a relatively quick payback over the investment made. Furthermore, it is expected that the results of the present study can aid producers from Acre to take decisions for the adoption of AI and TAI, and thereby, genetically improve their herds in a sustainable and efficient way.