The reproductive performance of egyptian buffalo

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This study was conducted during the period from Septemper, 1997 to November, 1998 at Mehallet Moussa Rrsearch Station (Kafr El-Sheikh Govemorate) Animal Production Research Institute, Agriculture Research Center-in Participation with Animal Production Department, Faculty of Agriculture, Moshtohor, Zagazig University.This study aimed at the evaluation of the reproductive performance of buffalo cows during the post -partum period. In additon, the possible impacts of time of breeding and season of calving on these parameters were also investigated.Atotal of 32 pluriparous buffalo calvers (20 of them gave their births during the dry feeding season and the remainder 12 calvers represented the green -feeding season). All calvings were normal and no cases of retained placenta were recorded . The newborns were kept with their dams for a week (to have their colostrum), then, the calves were removed from their dams and shifted to the artificial suckling.The dams were randomly assigned (on the basis of breeding time) into four comparable groups. The breedings were performed at 3.0 ± 0.4 ; 11.6 ± 0.5 ; 16.2 ± 0.9 and 24.7 ± 1.1 hrs after the onset of heat for the four experimental groups respectively.All buffalo cows were exposed to a strict heat observation (throughout the 24- hrs of the day) using a TV closed circuit. In addition, the females were exposed to a vasectomized buffalo bull teaser four times a day (at 6.00 am, 12.00 noon, 6.00pm and 12.00 midnight). The exposure to the teaser lasted half an hour at each round of heat detection. The clinical examination of the female reproductive tract was performed at weekly intervals starting from the 3`d week PP. Pregnancy was dignosed per rectum 45-60 day post-fertile service.A total of 458 perepheral blood samples was collected from the jagular vein of the buffalo cows starting from the end of the 2nd week PP for P4 determination. Blood samples were collected at a rate of 5-7 days with an additionl sample being collected.on the day of heat. Blood collection was continued until the end of the 2nd month of pregnancy.The main results showed that :The overall mean diameters of the cervix, right horn and left horn (as measured clinically) by the end of the 3rd week PP were 38.3 ± 1.2; 24.2 ± 0.8 and 24.5 ± 0.8 mm, respectivly. The corresponding diameters of the uterine parts at involution were 24.6 ± 1.0 ; 19.7 ± 0.6 and 19.2 ± 0.5 mm, respectively. The differences in these diameters due to season of calving were statistically not significant.-The overall means of ovarian length , hight and width were 16 .2 ± 0.3 ; 11.0 ± 0.3 and 7.6 ± 0.2 mm , respectively . The corresponding values for the smooth ovaries ; ovaries bearing follicles and ovaries bearing corpora lutea were 13 .6 ± 0.4 , 8.3 ± 0.3 and 5 .9 ± 0.1 mm ; 16.5 ± 0.3, 11.2 ± 0.3 and 7.7 ± 0.2 mm and 18.4 ± 0.2, 13.5 ± 0.3 and 9.1 ± 0.2 mm, respectivly. The differences between the corresponding values due to season of calving lacked statistical significance.The overall mean of UIP was 35.9±1.3 days. The difference in this trait between the dry (36.8±1.8 days) and green (34.4±1.8 days) season calvers were statistically not significant .-The overall mean of PPOI was 34.0±3.9 days. The difference in this trait between the dry (31.3±4.2 days) and green (38.4 ± 7.9 days) season calvers showed insignificant difference.The overall mean of PPEI was 37.9 ± 4.7 days . Although the PPEI was relatively longer during the green- calving season (51.0 ± 10.5 vs 30.0 ± 3.1 days) the difference was statistically not significant.The interval to the post-partum true (ovulatory) heat was 43.5 ± 4.8 days. The difference in this trait between the dry (37.8 ± 4.3 days) and green (51.9 ± 10.2 days) calving season was statistically non-significant.-The overall mean of DO in this study was 66.3 ± 4.1 days. The difference in the number of DO between the dry (67.5 ± 4.2 days) and green (64.3 ± 8.7 days) calvingseason was non-significant. The overall mean of SPL was 30.4 ± 3.9 days. Also, a insingnificant difference was

observed in this trait between both calving seasons (30.7 ± 4.3 and 29.8 ± 7.9 days, respectively).The overall mean number of ovulations to fertile service / animal was 2.4 ± 0.2 ovulations. The differences due to time of breeding were statistically significant (P<0.05). The hight number of ovulations /animal was recorded for G4 (2.9 ± 0.3 ovulations). The corresponding means for Gl, G2 and G3 were 2.0 ± 0.4 ; 2.6 ± 0.4 and 2.1 ± 0.3 ovulations / animal respectivly. The difference between the dry (2.5 ± 0.2 ovulations) and green (2.2 ± 0.2 ovulations) calving seasons was also significant (P<0.05).The overall mean of NS/C was 1.2 ± 0.1. The difference in this estimate between the dry (1.3 ± 0.1 service) and green (1.1 ± 0.1 service) calving season was notsignificant-.The percentage of true (ovulatory) heats recorded in this study was 87.7 %. The incidence of false (anovulatory) heats was 12.3 %. The corresponding percentages varied between 94.7 % - 84.8 % and 5.3 %-15.2 % during the green and dry calving seasons, respectively.-The overall incidance of QO was 25 %. Interestingly, 68.4 % of the total QO were lg ovulations (PP). The recorded percentages for QO during the dry and green calving seasons were 18 % and 38.5 %, respectively.-The overall mean ECL was 23.4 ± 1.3 days. No significant difference was observed for this estimate between the dry (24.0 ± 1.5 days and green (21.4 ± 2.4 days) season calvers.-The overall mean OCL was 20.2 ± 0.6 days. Non-significant differences in this trait were observed either between the experimental groups or between the dry (19.4 ± 0.7 days) and green (21.9 ± 1.3 days) calving seasons.-The overall mean number of heats to conception / animal was 2.03 ± 0.2 heats. The difference in this trait between the dry (2.3 ± 0.2 heats) and green (1.6 ± 0.2 heats) season calvers was statically non significant .-The overall mean CR / to the 15t service was 75 %. The corresponding CRs for the different comparable groups were 44.4 ; 100 ; 85.7 and 75 % respectivly . The corresponding CRs recorded during the dry and green calving seasons were 65.0 % and 91.6 , respectivly.-The overall mean GPL was 317.5 ± 1.9 days. Significant difference (P<0.05) was observed in this trait between the dry (314.3 ± 2.2 days) and green (322.8 ± 2.8 days) calving seasons.-The overall mean CI in this study was 383.6 ± 3.6 days . The difference in this trait between the dry (380.8 ± 4.2 days) and green (388.3 ± 6.6 days) season calvers was not significant.-The overall mean time of heat duration was 16.5 ± 1.0 hrs. Although, this time interval was higher during the green than dry calving season (19.1 ± 1.9 vs 15.3 ± 1.1 hrs), the difference between both calving seasons was non-significant.-The overall mean heat- intensity score was 60.2 ± 1.9 grades . The difference in this score between the dry (59.5 ± 2.4 grades) and green (61.8 ± 2.1 geades) was non-significant. Generally, the heat intensity score increased steadily with successive heats PP (53.6 ± 2.3; 63.6 ± 3.0 ; 70.9 ± 3.7 and 80.0 ± 0.0 grades for 1St ; 2nd ; 3'd - and 4th heats PP, respectively) . The overall mean intensity score at the fertile heat was 67.3 grades.-The heat detection efficiency (HDE) in this study was 89.7 % . The recorded HDE was higher during the green (94.7 %) than in the dry (87.5 %) calving season. The estimates of HDE were almost similar among the comparapble groups.-The calculated heat detection accuracy (HDA) in this study was 87.7 %. The HDA was comparatively higher during the green (95.0 %) than in the dry (84.8 %)calving season. The highst HDA (100%) was recorded for G2. NO critical differences were observed in this estimate among the other comparable groups.-Approximately two- thirds (67.7%) of the total observed heats occurred during the period from 6.00 pm to 6.00 am.were 67.7 %. Bellowing; standing firm to the male; frequent urenation and segrigation were the most repeatable signs of estrus. The standing behaviour ; vaginal mucous discharge ; redness of the vaginal mucosa and response to the finger massage of the extrnal genital organs were , respectivly , the most confirming signs of estruss. The results also showed that neither the female homosexual behaviour (as rarely encountered), nor bellowing, nor frequent urination , nor the restlessness could be used as relable signs confirming the occurance of heat .-The overall mean EEM in this study was 9.4 % (3 out of 32 buffalo cows). All cases of the EEM belonged to the females of G1 (bred at 3.0 ± 0.4 hrs after the onset of heat). All these cases of EEM also belonged to the dry calving season.The overall mean blood P4 conentration on the day of heat was 0.14 ± 0.02 ng /ml. This level increased to a mean peak of 3.1 ± 0.3 ng / ml during the luteal phase of the estrous cycle. The P4 peak of this phase ranged from 1.0-6.2 ng / ml. The overall mean P4 during the luteal phase of the cycle was insignificant higher (3.26 ±0.5 ng/ml) during the green-calving season as compared with of the dry-calving season (2.97 ± 0.3 ng/ml). The recorded P4 peak during the early pregnancy (1st two

months of pregnancy) was 4.8 ± 0.4 ng / ml. The seasonal impact on the P4 level of the different physiological states (i.e., on the day of heat; during the mid -luteal phase and of the peak of the 151 two months pregnancy) lacked statistical significance.-It could be concluded that buffalo cows kept under good management conditions are capable of maintaining a regular reproductive capacity throughout the year round. It has also been shown that breeding buffalo cows 11-16 hours after the beginning of heat would result in the best conception rates.