COMPARISON OF PROGESTERONE, $PGF_{2\alpha}$ & NOVEL *NC SYNCH* GnRH BASED SYNCHRONIZATION PROTOCOLS IN BOER AND VENDA INDIGENOUS GOATS OF SOUTH AFRICA

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ABSTRACT

The objectives of the study were to compare oestrous parameters, fertility parameters and progesterone assays following application of three oestrous synchronization protocols in maiden and multiparous Boer and Venda indigenous breed doelings (n=60). Goat does (n=60) were assigned into four balanced complete randomized block treatment experimental protocols. CIRD-G/eCG protocol goat does (n=15) had (CIDR-G / 0.3 g progesterone, Zoetis SA) intravaginal devices kept in situ for 12 days and 250 IU of eCG (Folligon®,1000IU, Intervet SA) with 10 mg $PGF_{2\alpha}$ (Lutalyse®, Dinoprost 5 mg/ml, Zoetis, SA) injected IM 12 h before device removal. Double $PGF_{2\alpha}$/eCG protocol does (n=15) had two 10 mg $PGF_{2\alpha}$ injections 12 days apart and 250 IU of eCG injected 12 h before second last $PGF_{2\alpha}$ injection. Novel *NC Synch* GnRH based protocol does (n=15) had 10 mg $PGF_{2\alpha}$ injected on day -2 , 0.5 ml GnRH (Receptal®, Buserelin 0.004 mg/ml, Intervet, RSA) injected IM on day 5 and 10 mg $PGF_{2\alpha}$ injected on day 12. Novel *NC Synch* GnRH based protocol goat does also received 0.5 ml GnRH injection at time of AI. Control does (n=15) only received 250 IU of eCG on day of oestrus onset. Trans-cervical deep uterine AI was conducted 24 h after oestrus onset using freshly collected Boer buck semen in responding does. Blood P4 profiles at experiment day 0, 6, 7, 10, 12 and 17 evaluated ovarian function dynamics during protocol application and rectal ultrasound at day 45-55 after AI determined goat doe conception status. Oestrous response, conception rates, oestrus duration and some fertility parameters did not differ significantly ($p>0.05$) among groups. CIRD-G/eCG protocol ($25.95^{b}\pm3.85$) influenced a significantly shorter ($p<0.05$) time interval to oestrus onset after treatment withdrawal. Novel *NC Synch* protocol ($147.7^{b}\pm2.5$) recorded significantly shorter ($p<0.05$) and control goat does ($156.4^{a}\pm2.0$) significantly longer ($p<0.05$) gestation length. Venda indigenous doelings, CIDR-G/eCG and novel *NC Synch* GnRH based protocol research variables influenced compact oestrus thus giving an opportunity to conduct *fixed*-TAI in goat ART programs.

Key words: Oestrous and ovulation synchronization, goat doelings, Artificial insemination, fertility, progestagen/progesterone.