NOTA BREVE

REPRODUCTIVE PERFORMANCE IN MEXICAN NATIVE PIGS

RENDIMIENTO REPRODUCTIVO EN CERDOS NATIVOS MEXICANOS

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ADDITIONAL KEYWORDS

Mexican Native Pig. Reproductive performance.

PALABRAS CLAVE ADICIONALES

Cerdo Nativo Mexicano. Rendimiento reproductivo.

SUMMARY

The reproductive performance of two breeds of Mexican Native Pig (MNP) was studied. Mexican Hairless Pigs (MHP) and Cuino Pigs (CP) which belong to the MNP, were raised under agricultural-grazing conditions in the State of Nayarit, Mexico. Reproductive variables were measured in 50 farrowings from MHP and 29 from CP. No differences were recorded on, total pigs born/ litter (6.22), number of stillbirths (0.67) and mummies (0.08), weaned litter (23.20 kg) and piglet weight (5.28 kg), but number and weisht of born alive/litter and piglet weight and, figures were higher for MHP (6.04, 6.32 and 1.01, respectively), but CP weaned more piglets (4.95; p<0.01). No differences were found for age at first farrowing (547.65), gestation (113.38) and lactating days (38.90), days from weaning to effective service (11.19), and interval between farrowings (159.06).

RESUMEN

El objetivo del presente trabajo fue proveer información sobre el rendimiento reproductivo de cerdas Criollas para caracterizar al Cerdo Nativo Mexicano (CNM). Se utilizaron Cerdos Pelón Mexicano (CPM) y Cuinos (CC), ambas razas CNM, criados en condiciones agro-pastoriles en el Estado de Nayarit, México. Se utilizaron 50 partos de CPM y 29 de CC sin observar diferencias para el total de lechones nacidos por camada (6,22), número de mortinatos (0,67), y de momificados (0,08), peso de la camada al destete (23,20 kg), y peso promedio del lechón destetado (5,28 kg), mientras que número y peso de lechones nacidos vivos por camada y peso promedio del lechón nacido vivo fueron más elevados en el CPM (6,04; 6,32 y 1,01, respectivamente); sin embargo, el CC destetó más lechones (4,95; p<0,01). No se encontraron diferencias, para las variables: edad al primer parto (547,65), días de gestación (113,38), días de lactancia (38,90), días de destete a servicio efectivo (11,19) e intervalo entre partos (159,06).

INTRODUCTION

The implications of the Mexican Native Pigs (MNP) in rural communities is doubly important, on the one

hand it improves the farmer or peasants diet, and on the other, the pigs are fattened up to be sold (Lemus *et al.*, 1999; Suárez and Barkin, 1990). Nonetheless, several different studies done with the MNP, do not give the modern pig a chance, deeming it a non improved breed without commercial traits. According to different studies, the Mexican Hairless Pig (MHP) has adapted to different ecological conditions (Alonso-Spilsbury *et al.*, 1998, 2000), that include infectious and nutritional factors (Chel *et al.*, 1983).

Several studies, basically dissertations on the MHP compare the productive and reproductive performance, without there be dissertations on the Cuino Pigs (CP). Historically, the MNP are raised in rural conditions under weak technological conditions, having to take advantage of natural grub like tuber, forage, and agricultural feedstuffs. These pigs have the ability to produce body fat and adapt to local conditions. Probably their populations have genetically pre determined useful characteristics, they could represent a genetic reserve to obtain well-adapted national varieties. It can not be considered a pure breed because there are no systematic selection programs

Table I. *Minimum quadratic means and statistical diferences of native sows´ reproductive performance.* (Medias mínimo cuadráticas y diferencias estadísticas del rendimiento reproductivo de cerdas nativas).

	GLOBAL				MHP		CP	
Variable	Mean	SD	Minimum	Maximum	N	LSM	N	LSM
TPB	6.22	2.8	1.0	18.0	50	6.36 a	29	5.97 a
BAP	5.57	2.4	1.0	12.0	50	6.04 a	29	5.36 b
S	0.67	1.6	0.0	11.0	50	0.15 a	29	0.90 a
M	0.08	0.7	0.0	6.1	50	0.14 a	29	0.03 a
BALW	5.39	2.7	0.4	12.3	45	6.32 a	26	4.95 b
BWLP	0.97	0.3	0.4	1.5	41	1.01 a	17	0.82 b
WP	4.38	2.2	1.0	9.0	29	4.20 b	18	4.95 a
WLW	23.20	14.4	2.9	58.0	28	21.35 a	18	20.72 a
WPW	5.28	2.4	2.2	12.5	27	5.25 a	18	3.93 a
AFF	547.65	199	278	925	22	534.64 a	7	558.57 a
GD	113.38	1.7	108.0	117.0	40	113.38 a	20	113.40 a
LD	38.90	19.2	0.0	74.0	31	40.30 a	16	36.19 a
DWES	11.19	13.4	0.0	61.0	18	11.39 a	9	10.78 a
IF	159.06	37.7	5.0	249.0	20	159.60 a	13	158.23 a

MHP: Mexican Hairless Pig. CP: Cuino Pig. SD: Standard deviation. N: Number of observations. LSM: Least Squared Means. TPB: Total pigs born/litter. BAP: Born alive piglets/litter. S: Stillbirths. M: Mummies. BALW: Born alive litter weight. BWLP: Birth weight of live piglets. WP: Weaned piglets. WLW: Weaned litter weight. WPW: Weaned piglet weight. AFF: Age at first farrowing. GD: Gestation days. LD: Lactating days. DWES: Days from weaning to effective service. IF: Interval between farrowings.

since they seem to be heterozygous populations. On occasions they are bred, but they preserve a high degree of their population's characteristics (Lemus-Flores *et al.*, 2001). Due to its fat production the MNP has a productive chance, it has been proved that the products elaborated with their meat have better quality, appearance and taste, giving an extra value to the pork through the elaboration of good Iberic quality products (Rubio and Méndez, 2000). It is important to know the measurements that characterize the native pig, that in the future will be used as a reference and comparison point in the advances and improvement of this breeds.

MATERIAL AND METHODS

To study the reproductive performance, 50 farrowings from the MHP and 29 from the CP were analyzed. Parity number varied from 1 to 3. Variables measured were: Total Pigs Born/Litter (TPB), Born Alive Piglets/ litter (BAP), Stillbirths (S), Mummies (M). Born Alive Litter Weight (BALW), Birth Weight of Live Piglets (BWLP), Weaned Piglets (WP), Weaned Litter Weight (WLW), Weaned Piglet Weight (WPW), Age at First Farrowing (AFF), Gestation Days (GD), Lactating Days (LD), Days from Weaning to Effective Service (DWES), and Interval between Farrowings (IF).

According to these variables the next statistical models were used in the variance analysis:

$Y1_{ij} = \mu + \text{MNP population}_i + e_{ij}$

$Y2_{ijk} = \mu + \text{MNP population}_i + \text{Parity number}_j + e_{ijk}$

$Y3_{ijk}$ and $Y4_{ijk} = \mu + \text{MNP population}_i + \text{Parity number}_j + ßx + e_{ijk}$

Y1= AFF. Y2 = TPB, GD, LD, DWES and IF. Y3 = BAP, S, M, BWLP and BALW; and ßx were effects of co-variable TPB. Y4 = WP, WLW, and WPW; and ßx were effects of co-variable BAP. All variables in unvaried analysis. *e* was the aleatory error.

RESULTS AND DISCUSSION

For the reproductive variables TPB, M, WLW, and WPW no significant statistical differences were found ($p>0.05$) between MHP and CP **(table I)**; whereas variables BAP, BALW, and BWLP were statistically different ($p<0.01$) between the studied breeds, higher figures were found for MHP, although CP weaned more piglets ($p<0.01$). The figures for both native breeds were lower than those reported for modern pigs, this has been confirmed by other investigations, indicating that creole pigs are not prolific, had similar performance as the local pig breeds in Latin America (Romano *et al.*, 1980; Benítez and Sánchez, 2001), and have not been improved over the last 500 years, since their arrival to America. Although it can raise as many pigs as the modern lines through the natural induction of pregnancy during lactation (Mota *et al.*, 2002). Tello and Cisneros (1990) found that the MHP under confinement conditions showed no differences in: days of pregnancy, days from weaning until first service, and percentage of pre-weaning mortality when it was compared with other modern breeds.

No significant statistic differences ($p>0.05$) were found between both

native pigs, for the reproductive variables, only the AFF was higher than the one reported in commercial modern breeds. The MNP reproductive performance is similar to any other kind of pig, therefore genetic improvements in this sense have not been many, and due to this reproductive ability they have not been extinct yet.

CONCLUSIONS

The MHP had more born alive piglets, born alive litter weight, and birth weight of live piglets; on the other hand, the Cuino sow weaned more piglets. For other reproductive characteristics no differences were found between MHP and CP breeds.

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