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TITLE
EVOLUTION OF REPRODUCTIVE PERFORMANCE IN SPANISH FARMS IN THE LAST 10 YEARS AND PREDICTION FOR 2020. IMPACT OF FARMS' SIZE

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CONTENT
Background and Objectives
The objective of this study was to describe the evolution during the last 10 years for the reproductive KPIs including total born (TB), born alive (BA), still born (SB), mummifies (MM), weaning to first service interval (WFSI) and preweaning mortality (PWM) as well predict performance for 2020 based on this trend, assessing the impact of farm size.

Materials and methods
Data from 260 farms and a total of 255,386 sows were used obtained from the PigCHAMP Pro Europa SL database in the interval 2009-2018. Time series analysis was performed by R software and using Autoregressive Integrated Moving Average (ARIMA) model for forecasting . Data were distributed in three groups depending on the number of sows: G1 (farms>1500 sows), G2 (farms<500 sows) and G3 (all farms).

Results
In G3 TB increased from 12.4 to 15.3, BA from 11.4 to 13.7, SB from 0.9 to 1.2, MM from 1.0 to 2.3% and PWM from 11.5 to 13.2%. WFSI decreased from 6.7 to 5.8 d. The worst values were registered in winter for SB, summer for MM and autumn for WFSI. TB, BA and PWM were better in spring. TB and BA showed no differences between G1 and G2 until 2014 but since then, G1 showed a significant increase ($P<0.05$) of 2.2 and 1.4 piglets per farrowing respectively. Percentage of SB and MM kept stable in G2 while G1 showed an increase of MM up to 2.25% ($P< 0.05$). For 2020, ARIMA model shows 85.2 FR, 88.3 AFR and 5.3 d WFSI.

Discussion & Conclusion
Reproductive performance of Spanish farms improved during the last 10 y. Big and small farms showed relevant differences for the main KPIs during that period.