

A STUDY OF BIRTH WEIGHT, COLOR PATTERN INHERITANCE OF SIX MONTHS OLD CROSSBRED, UPGRADE AND TRIPLE CROSSED SWINE IN THE PHILIPPINES

Estudio del peso al nacer, herencia del color de capa de cerdos de seis meses de edad cruzados, con absorción de sangre y de triple cruzamiento en Filipinas

Etude du poids à la naissance, de l'hérédité de la couleur, chez les porcs croisés, avec de l'absorption du sang et triple croisés, dans les Philippines

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Realizing the need for reliable recorded data on color inheritances in crossbred swine, in so far as their significance to hog raisers is concerned, the authors in this study venture to put into record the result of color combinations as based on suckling produced through the matings system of crossbreeding. Since there are few studies made on color inheritance in upgrade swine, it is the aim of the authors to put into record the outcome of the color combination as based on sucklings produced through the mating system of upgrading.

REVIEW OF LITERATURE

SEVILLA reports that quality and amount of feed given partly influence the growth of hogs. Heavy feeding with good balanced ration tends to hasten the growth while limited feeding retards it.

SAMALA declared in 1954 that in close breeding there are several general principles which have been found to hold true for wide crosses. The F_1 generation tends to resemble one parent in some respect, the other parent in other respects. A more or less mosaic type of inheritance is seen rather than a true of the more superficial characteristics. This is particularly true of the more superficial characteristics, most of which are determined by few sets of genes. Thus, we see that the F_1 of the Duroc Jersey \times Hampshire (banded) cross has the white band of the Hampshire and the fawn color of the Duroc Jersey. This may be explained in part by simple dominance and recessiveness.

VILLEGAS reports that the mating of black with white-colored swine gives white-

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Color patterns	Pure white	Red black spots	Pure black	Black with white belt	Pure red	Black and white	White and red	Black with white spots	White & brown with black spots & black with red spots
Percentage ...	45.23	12.56	8.04	7.04	7.04	5.27	4.02	3.01	2.51

colored swine with black spots, some animals of roan color. Black swine mated with red swine produces red individuals with black spots. The red color being of different shades. Red swine bred to white swine produces white swine, some of the animals being of roan color. Bolted swine mated with black or red swine gives colored animals with white belts. Belted swine bred to white swine produces white individuals with black spots, some of the offspring being of roan color.

RIGOR in his 8-year research for breeding swine had produced the upgrade pig known as the «Miracle pig» adapted to Philippine condition with the fleshy meat and efficient feed utilization of the Landrace, the fast growth characteristic of the Large White and the Philippine pig for its adaptability. It is white in color.

MATERIALS AND METHODS

The present work consisted of observing color patterns, litter size, weighing, feeding of purebred and crossbred sows, boars, sucklings and 180 days old pigs.

DISCUSSION OF RESULTS

The corresponding percentages represented by each color pattern of sucklings produced were likewise taken and presented in the descending order of color dominance, as follows:

It will be noted from this table that pure white sucklings showed dominance, being 45.23 per cent of the total number of sucklings under study. On the other hand it was found out that the color patterns least represented were white with black spots, brown with black spots and the black with red spots.

Six upgrades dams with blood composition of Minnesota, Duroc, Landrace, Berkshire, Hampshire and Philippine Native were used. These 6 dams were mated with a pure Duroc boar and gave 34 sucklings, 11 of which were males and 23 females.

A pure Landrace boar was used with upgrade females, indicated the appearance of white and brown pigs with black spots ranging from 40 per cent to 100 per cent.

On litter size

On farms observed the litter size of dams was not counted based on the color, so that few data could be gathered as to litter size of dams of different blood composition and colors. There were, however, 9 females that were separated with

Color	Blood composition	Litter size at birth (No.)
White	50 % LW × 50 % L	8.0
White	18 % LW × 82 % L	10.0
White	25 % LW × 75 % L	10.0
White	50 % LW × 25 % H × 25 % L	8.0
Whitish brown	50 % LW × 50 % D	10.0
Brown with white belt	50 % LW × 25 % D × 25 % H	9.0
White	50 % LW × 25 % L × 25 % D	11.0
Brown and white	50 % D × 50 % L	7.0
Dark brown	50 % D × 25 % H × 25 % B	9.0

different blood composition and color and their number of offspring produced at first farrowing. The 50 per cent Large White \times 50 per cent Landrace White gilt had 8 sucklings at farrowing. There were 5 white gilts whose litter sizes ranged from 8 to 11 sucklings. The other colored dams of whitish brown to dark brown and also with white belt gilts had litter sizes ranging from 7.0 to 10.0 sucklings.

On birth weight

On triple crossed sucklings the heaviest at day-old weight came from the white colored sucklings averaging 2.5 lb with the standard error of ± 0.0014 ; the lightest were the brown suckling of 1.769 lb and standard error of ± 0.2300 .

On crossbred sucklings the white colored were again heavier than the colored sucklings, the highest among the white being 2.82 lb ± 0.044 . Most of the brown sucklings only averaged at birth 2.55 lb ± 0.044 .

Color	Blood composition	Average weight or mean in lb.	S. E.
White	50 % LW \times 25 % L \times 25 % H	2.530	± 0.0014
Light brown	50 % LW \times 25 % L \times 25 % D	2.503	± 0.0039
90 % white and 10 % brown.	50 % Y \times 25 % L \times 25 % D	2.330	± 0.5050
90 % white and 10 % brown.	50 % LW \times 25 % D \times 25 % H	2.250	± 0.0012
10 % brown with white belt and 90 % whitish brown	50 % D \times 25 % L \times 25 % Y	2.030	± 0.1040
White	50 % LW \times 25 % L \times 25 % X	1.920	± 0.2818
White	25 % LW \times 50 % I. \times 25 % D	1.909	± 0.0160
Brown	82.5 % D \times 10.5 % LW \times 7 % L	1.769	± 0.2300
White	50 % Y \times 50 % L	2.82	± 0.044
Whitish brown	50 % LW \times 50 % D	2.62	± 0.022
95 % brown and 50 % with white belt	50 % H \times 50 % D	2.55	± 0.044
White	50 % H \times 50 % L	2.66	± 0.066
Whitish brown	50 % L \times 50 % D	2.64	± 0.044
90 % white and 10 % whitish brown	50 % L \times 50 % D	2.88	± 0.044

Color	Blood composition	Sex	Average weight in lb. at 180 days
80 % whitish brown and 20 % white	50 % LW \times 50 % D	Barrows	173.558
White	50 % L \times 25 % D \times 25 % LW	Barrows	178.706
Brown	50 % LW \times 75 % D	Barrows	177.188
90 % white and 10 % whitish brown	50 % D \times 50 % L	Barrows	181.060
80 % whitish brown and 20 % white	50 % LW \times 50 % D	Gilts	170.500
White	50 % L \times 25 % D \times 25 % LW	Gilts	173.778
Brown	25 % LW \times 75 % D	Gilts	166.100
90 % white and 10 % whitish brown	50 % D \times 50 % L	Gilts	171.160

On weight at one hundred eighty days

Comparing their weights at 180 days, the white pigs were heavier than the colored pigs. Among the barrows, the white pigs with a blood composition of 50 per cent Duroc \times 50 % Landrace averaged 181.06 lb and in the gilts lowest average weight at 180 days was 166.10 lb, also from the brown pigs.

SUMMARY

The different color patterns observed in this study were pure white, pure black, pure brown or sepia, white with black spots, black with white belt, whitish brown, black with white spots and some rare cases of black with brown stripes seen at birth which later on disappear as the animal age.

It has been observed, too that white was dominant over any color and the least represented were white with black spots, brown with black spots or stripes and black with red.

On the litter size of colored gilts compared to the litter size of white gilts, the white gilts litter size were better than the colored gilts, the range for the white gilts being 8.0 to 11 sucklings at birth while that of the colored gilts ranged from 7 to 10 sucklings at birth.

The birth-weight records were divided into groups and the observation gathered was that, even if the sucklings were produced through triple cross mating the white sucklings were heavier than the colored sucklings. The white sucklings averaged $2.5 \text{ lb} \times 0.0014$ at birth while the colored triple crossbred sucklings averaged $1.769 \text{ lb} \pm 0.2300$ also at birth.

When continued further to 180 days, again, it has been shown in this study that white barrows were heavier than colored barrows. The white barrows registered an average weight record of $181.06 \pm 0.02 \text{ lb}$ while that of the colored pigs at the same age registered an average of 173.55 ± 0.02 to $177.188 \pm 0.03 \text{ lb}$.

It was further noticed that the weight of the white gilts averaged at 180 days $173.778 \pm 0.022 \text{ lb}$ while that of the brown gilts at the same age gave an average weight of $166.10 \pm 0.02 \text{ lb}$.

RESUMEN

En el estudio realizado se observaron los siguientes tipos de colores: blanco puro, negro puro, marrón puro o sepia, blanco con manchas negras, negro con faja blanca, marrón blanquecino, negro con manchas blancas y, por último, en algunos casos poco frecuentes, negro con rayas marrones que desaparecieron posteriormente al crecer el animal.

También se observó que el blanco era el color dominante sobre cualquier otro y que los menos representados fueron blanco con manchas negras, marrón con manchas o rayas negras y negro con rojo.

Habiéndose comparado las camadas de cerdas coloreadas y cerdas blancas, resultaron más numerosas las del segundo tipo. La proporción apreciada fue de 8 a 11 lechones nacidos en el caso de las cerdas blancas, y de 7 a 10 en el de las de color.

Los records de peso al nacimiento fueron divididos en grupos, y se observó que incluso si los lechones procedían de un triple cruzamiento, los blancos eran más pesados que los coloreados. El de los blancos fue de $2,5 \text{ lb} \pm 0,0014$, mientras que el de los de color (triple cruzamiento) fue de $1,769 \text{ lb} \pm 0,2300$, también al nacimiento.

Se demostró asimismo, después de 180 días de trabajo, que el peso de los cerdos blancos era mayor que el de los de color. El promedio registrado fue de $181,06 \pm 0,02 \text{ lb}$ para los blancos, mientras que, a la misma edad, fue de $173,55 \pm 0,02$ a $177,188 \pm 0,03 \text{ lb}$ para los de color.

Posteriormente, se comprobó que el peso medio de las cerdas blancas a los 180 días fue de $173 \pm 0,022 \text{ lb}$, mientras que, a la misma edad, fue de $166,10 \pm 0,02 \text{ lb}$ para las marrones.

RESUME

Au cours du travail réalisé, on observa les suivants types de couleurs: blanc pur, noir pur, marron pur ou sépia, blanc avec des taches noires, noir avec une bande blanche, marron blanchâtre, noir avec de taches blanches, et, finalement, dans quelques cas peu fréquents, noir avec de raies brunes qui disparurent postérieurement, quand l'animal grandit.

On observa aussi que le blanc était la couleur dominante sur toutes les autres, et que le blanc avec de taches noires, le marron avec de taches ou raies noires et le noir avec le rouge, furent les moins représentées.

Ayant été comparées les portées de truies coloriées et truies blanches, les plus nombreuses furent celles du deuxième type. La proportion qu'on y apprécia fut 8 à 11 cochons de lait, nés dans le cas des truies blanches, et 7 à 10 dans celui des coloriées.

Les records de poids à la naissance furent divisés en groupes, et on observa que, inclus si les cochons de lait procédaient d'un triple croisement, les blancs pesaient plus que les coloriés. Celui des blancs fut $2,5 \text{ lb} \pm 0,0014$, tandis que celui des coloriés (triple croisement), fut $1,769 \text{ lb} \pm 0,2300$ aussi à la naissance.

Egalement on démontra après 180 jours de travail continué que le poids des cochons blancs était plus élevé que celui des coloriés. La moyenne registrada fut $181,06 \pm 0,02 \text{ lb}$ pour les blancs, tandis que, au même âge, fut $173,55 \pm 0,02$ à $177,188 \pm 0,03$ pour les coloriés.

Postérieurement, on vérifia que le poids moyen des truies blanches après 180 jours fut $173 \pm 0,022 \text{ lb}$, tandis que, au même âge, fut $166,10 \pm 0,02 \text{ lb}$ por les marrones.

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