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畜產試驗所白水牛群之微衛星遺傳標記多樣性分析

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畜產試驗所白水牛群之微衛星遺傳標記多樣性分析

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為探討行政院農業委員會畜產試驗所花蓮種畜繁殖場台灣水牛保種族群中白水牛群之遺傳多樣性。本試驗利用 FAO(2004)建議使用的 12 組水牛微衛星標記分析該場全場 9 頭 白水牛個體之 DNA，其中除 CSSM045 與 CSSM070 微衛星標記所檢測的基因型在所有檢測個體皆為單型外，其它 10 組微衛星標記皆有多態型的基因型。共檢測到 32 個等位 基因(alleles)，平均每個基因座其有 2.7 個等位基因，其觀測異質度介於 0 到 0.778，平均為 0.389，期望異質度介於 0 到 0.699，平均為 0.483，而多態性訊息含量介於 0 到 0.611，平均為 0.404。在本試驗選用的 12 組微衛星標記組中，除 2 組微衛星標記在所有檢測樣品僅出現單一等位基因型外，有 5 組呈現高多態性資訊(PIC 孟 0.5)，有 5 組 呈現中多態性資訊( $0.5 > \text{PIC 孟 } 0.25$ )，而平均期望異質度與平均觀測異質度均高於 0.25，顯示此保種族群仍保有相當程度的遺傳多樣性，惟 CSSM045 與 CSSM070 標記分析所有個體皆呈現單一基因型，可能是當初引種的個體就僅有單一基因型，或在保種族群建立後喪失了其它基因型。因此，育種者應更加重視此白水牛群之遺傳多樣性的維護。

關鍵語:遺傳多樣性、微衛星標記、白水牛

GENETIC DIVERSITY ANALYSIS OF WHITE TAIWAN WATER BUFFALO HERD IN LRI-COA BY  
MICROSATELLITE MARKERS

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To study the genetic diversity of white water buffalo population in Taiwan Water Buffalo conservation herd of Hualien Animal Propagation Station of LRI. A set of 12 microsatellite markers recommended for water buffalo in FAO's DADIS MoDAD programme were utilized to analyze all 9 animals to generate genotype data. Except CSSM045 and CSSM070, all the microsatellites were polymorphic with average allelic number 2.7, ranged from 1 to 4 alleles per locus. There were 32 alleles detected in total. The observed heterozygosity of the population ranged from 0 to 0.778, and the average of observed heterozygosity was 0.389. The expected heterozygosity ranged from 0 to 0.699, and the average of expected heterozygosity was 0.483. The estimated polymorphic information content (PIC) ranged from 0 to 0.611, and the average of PIC was 0.404. In 12 markers, five markers were highly informative with PIC more than 0.5 and two markers, CSSM045 and

CSSM070, had only one allele detected. Therefore, geneticist should be aware of the genetic diversity of white water buffalo herd.

Key Words: Genetic diversity, Microsatellite marker, White Taiwan Water Buffalo

### 凱馨桂丁土雞之產蛋性能改進

### 凱馨桂丁土雞之產蛋性能改進

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為改善凱馨實業股份有限公司紅羽土雞之產蛋性能進而建立凱馨桂丁土雞品在。以該公司 原有紅羽土雞群選留種雞 6 公 72 母建立選育族群，候選種雞選留標準除雞白病檢測、膚色評分及體重外，以候選母雞之產蛋性能與親代產蛋性能來選留種母雞，而候選公雞則以精子品質與親代產蛋性能來選留種公雞。經 6 個世代的產蛋數選育改良，不同世代母雞產第 1 枚蛋的日齡與 40 週齡產蛋數在世代間存在極顯著差異(P

關鍵語:產蛋性能、凱馨桂丁土雞、選育

### IMPROVEMENT OF EGG PRODUCTION PERFORMANCE IN KAISHING GUIDING NATIVE CHICKEN

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To improve the egg production performance of red feathered chickens in Kai Shing Trading Co., Ltd., and then to establish Kaishing Guiding Native Chicken line. Six rooster and 72 hens from original red feathered chicken flock were selected as selection flock. The selection standards of candidate breeders were in addition to PD negative, skin color score and body weight. And Hens were selected with not only their own but also dam's egg production performance. Roosters were selected with their own sperm quality and their dam's egg production performance. To analyze egg production performance of those hens from six generations, there were significant differences in the age at first egg(AFE) and egg number up to 40 weeks of age (EN40) were detected among the generations (P

Key Words: Egg production performance, Kaishing Guiding Native Chicken, Selection

### 黏多醣症與 POU1f1 基因型對努比亞山羊生長性能表現之分析

### 黏多醣症與 POU1f1 基因型對努比亞山羊生長性能表現之分析

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本試驗之目的為利用黏多醣症(Mucopolysaccharidosis, G6S)與腦下垂體特異性轉錄因子 (pituitary transcription factor, POU1f1)的基因型, 對 63 頭(14 公, 49 母)努比亞山羊的 生長性狀與體型測量值表現進行評估, 生長性狀包括出生重、3 月齡(離乳)、6 月齡及 12 月齡之體重、體長、體高、胸圍;另計算從出生至各年齡的平均日增重, 初步結果:G6S 基因型正常型 AA 與雜合型 AB 兩者之間, 經性別校正後各性狀皆無顯著差異, 若考慮 POU1f1 基因型與性別母, 在 3 月齡體長、6 月齡體重、6 月齡體高及出生至 6 月齡日增重等性狀, 基因型 CT 的個體都顯著高於 CC 個體, 但 G6S AB POU1f1 CC 個體 6 月齡體長顯著大於 G6S AA POU1f1 CC, G6S AB POU1f1 CC 與 G6S AA POU1f1 CT 個體間各性狀無差異, 綜合上述結果顯示 POU1f1 與 G6S 基因型對母努比亞山羊生長性狀有 影響, 可供未來努比亞山羊生長性能基因選種之參考。

關鍵語:生長性能、基因型、努比亞山羊

ANALYSIS OF GENOTYPE IN MUCOPOLYSACCHARIDOSIS AND POU1f1 WITH GROWTH PERFORMANCE OF NUBIAN GOAT

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The aim of this study was to apply the genotypes of Mucopolysaccharidosis (G6S) and pituitary transcription factor (POU1f1) genes to evaluate its relationship with growth performance of 65 (14 male, 49 female) Nubian goat. The growth performance included body weight at birth, and body weight, body length, withers height, and chest girth at 3-month-age, 6-month-age and 12-month-age, respectively. The average daily gain (ADG) between at birth and vary age periods was also calculated. The preliminary results, there were no significant difference between two G6S genotypes, normal type AA and heterozygous type AB at all growth traits of Nubian goat from the data adjusted with sex factor. If we considered the genotype of POU1f1 in female Nubian goat, individuals with genotype POU1f1 CT were significant higher than with POU1f1 CC in the following traits: body length at 3-month-age, body weigh at 6-month-age, withers height at 6-month-age, and ADG from birth to 6-month-age, respectively. But the body length at 3-month-age of individuals with genotype G6S AB, POU1f1 CC was significant higher than with genotype G6S AA, POU1F1 CC. There was no significant difference between individual with G6S AB, POU1F1 CC and with G6S AA, POU1f1 CT at all growth traits of Nubian goat. POU1f1 and G6S genotypes affected growth traits of female Nubian goats. The results are potentially useful in rapid growth selection program for Nubian goat farmer in the future.

Key Words: Growth performance, Genotype, Nubian goat

乳牛短脊椎綜合症基因檢測法之改進

## 乳牛短脊椎綜合症基因檢測法之改進

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乳牛短脊椎綜合症(BS)為一種隱性遺傳疾病，在 2006 年時首度發現於丹麥。此症狀形成的原因為在牛第 21 號染色體上的 FANCI 基因有 3.3 kb 片段的缺失。本實驗室初始檢測法係參考與修改 Fang et al.(2013)所描述者，結果發現該法不但費時且檢測電泳圖像不甚理想。故而進行檢測方法之改進，於缺失 DNA 片段中設計一引子，採用多重引子 PCR 法，進行乳牛 BS 基因型檢測，設計 BS 正常基因型者在電泳圖像中 1 kb 處有一條明顯的 DNA 片段，而雜合型者則在約 0.4 與 1 kb 處各有一條明顯的 DNA 片段。整體而言，新檢測法可比 Fang et al.(2013)使用法節省 1 小時左右的時間，且將增幅出的 DNA 片段回收定序後，發現該等片段皆為 BS 基因序列。

關鍵語:短脊椎綜合症、基因檢測法、FANCI 基因

### IMPROVEMENT OF BRACHISPINA SYNDROME GENOTYPING METHOD FOR DAIRY COWS

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Bovine brachyspina syndrome (BS) is a recessive genetic defect first observed in Denmark in 2006. The syndrome is caused by a 3.3-kb DNA deletion in the bovine Fanconi anemia complementation group I (FANCI) gene on bovine chromosome 21. The preliminary genotyping method in our lab was modified according to the reference published by Fang et al. (2013). However, the result was not good enough to identify BS genotypes clearly. We developed a new method using multiplex PCR. A new primer was designed in the 3.3-kb deleted DNA fragment. By our new genotyping method, the normal genotype will have a clear DNA band at roughly 1 kb. The carriers will have two clear DNA bands at roughly 0.4 and 1 kb. Overall, the new method is 1 hour quicker in genotyping than the one proposed by Fang et al. (2013). Moreover, the method was verified by sequencing the DNA bands recovered from the target bands on the gel, and it is a better genotyping method than that previous one.

Key Words: Brachyspina syndrome, Genotyping method, FANCI gene

## 天噸乳牛之繁殖力評估與選育

### 天噸乳牛之繁殖力評估與選育

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天噸乳牛是拍一頭泌乳牛在台灣濕熱氣候下，自開始測乳後的每一個泌乳期(305-2X-ME)估之均乳量有 10,000Kg 以上，亦就是年產乳量有 10 公噸以上，10 公噸的英文是 Ten Tons，取其音取其義，我們稱這種乳牛為天噸乳牛(Ten Tons Cow)。自 2001 年至 2015 年 10 月，累計有 7,207 頭，其中 1,102 頭其有其雌親三代以上車譜。天噸乳牛之培育方向須兼顧乳量及繁殖能力，故參考國際 畜政聯盟(ICAR)轄下種公牛協會(InterBull)之乳牛性能分項「乳量乳質 體型 體細胞數 高繁 產積順 易懷孕 好擠乳」，選取高繁、產積順及易懷孕性狀來評估天噸乳牛之繁殖力。其雌親三代以上車譜的 1,102 頭中有 381 頭(381/1102=35%)符合高繁產積順條件。高繁三胎以上的天噸乳牛有 232 頭(232/381=61%)，年度資料顯示於 2002 年僅有一頭，至 2008 年才有 10 頭以上，到 2012 年才有 30 頭以上，以及 2015 年有 77 頭。這 2015 年的 77 頭高繁殖力天噸乳牛，分布於 7 個縣市 28 個酪農戶。顯示選留的天噸乳牛之繁殖力，亦可逐代改進其高繁、產積順及易懷孕性能。

關鍵語:乳牛、繁殖力、選育

#### REPRODUCTIVITY EVALUATION OF TEN TONS COW AND THEIR BREEDING SCHEME

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Ten Tons Cow is designated as milk yield of 305-2X-ME greater than 10,000kg for hot and humid environment in Taiwan. For breeding scheme of dairy cattle, selection on milk yield and quality associated with reproductive performance is essential to the hot and humid weather. A total of 7,207 Ten Tons Cow was recorded from year 2001 to October of 2015. Among of them, there are 1,102 head with maternal pedigree in upward three or more generation. To improve the reproduction ability of those of Ten Tons Cow, an evaluation was performed with the application of the guidelines of cow performance evaluation with "Production, Type, Cell count, Longevity, Calving, Fertility, Workability" from InterBull of International Committee of Animal Recording (ICAR). After the evaluation on longevity, calving and fertility for pedigreed cows, there were 381 cows (381/1102=35%) to have longevity and calving records. There were 232 higher reproductive cows (232/381=61%) with at least of three parities. In the records by the tested year, there was only one higher reproductive Ten Tons Cow in 2002, more than 10 cows in 2008, more than 30 cows in 2012, and 77 cows in 2015. Those of 77 higher reproductive cows were raised in 28 farms located in seven counties. Results indicated that the reproduction ability of Ten Tons Cow could be selected generationally on their longevity, calving and fertility performance.

Key Words: Dairy cattle, Reproduction ability, Selection

評估畜試紅公豬與配不同品種黑母豬之雜交後裔繁殖性能

## 評估畜試紅公豬與配不同品種黑母豬之雜交後裔繁殖性能

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本試驗選定 R4 與 R5 代畜試紅公豬(R)與配高畜黑母豬(K)與雜交黑母豬(B) , 評估其雜交後裔(KR 與 BR)之繁殖性能。試驗共收集 15 胎繁殖性能資料。結果顯示, KR 與BR 雜交豬的平均出生窩仔數為  $11.00 \pm 4.69$  與  $10.30 \pm 3.83$  頭;出生活頭數為  $9.75 \pm 5.19$  與  $9.40 \pm 2.99$  頭 ;出生育成率 88.64% 與 91.26%;出生重  $1.66 \pm 0.29$  與  $1.83 \pm 0.21$  公斤;3 周齡體重  $8.04 \pm 1.04$  與  $8.92 \pm 1.47$  公斤;3 周齡育成率 92.30 與 94.68%。綜合得知, KR 雜交豬有較高的出生窩仔數與出生活頭數, 但出生體重與三周體重則略低於 BR 雜交豬。

關鍵語:黑豬、畜試紅豬、繁殖

EVALUATION ON REPRODUCTIVE PERFORMANCE OF THE CROSSBRED OFFSPRING PRODUCED BY MATING BOARS OF LRI DUROC WITH DIFFERENT BLACK SOWS

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In this study, the R4 and R5 generations of LRI Duroc boar (R) were mated with sows of KHAPS black pig (K) and hybrid black pig (B), and the reproductive traits of their crossbred offspring (5 KR and 10 BR sows) were recorded. These reproductive traits includes litter size at birth, piglet born alive, survival rate at birth, body weight (BW) at birth, BW at 21 days of age, and survival rate at 21 days of age. The results showed that litter size at birth, piglet born alive, and survival rate at birth were, respectively,  $11.00 \pm 4.69$ ,  $9.75 \pm 5.19$  and 88.64% in KR sows;  $10.30 \pm 3.83$ ,  $9.40 \pm 2.99$ , and 91.26% in BR sows. The body weight (BW) at birth, BW at 21 days of age, and survival rate at 21 days of age were, respectively,  $1.66 \pm 0.29$ ,  $8.04 \pm 1.04$ , and 92.03% in KR sows; and  $1.83 \pm 0.21$  kg,  $8.92 \pm 1.47$  kg, and 94.68% in BR sows. From above results, it demonstrated that the litter size at birth, piglet born alive of KR sows were more than those of BR sows, but body weight (BW) at birth, BW at 21 days of age of KR sows were lower than the BR sows.

Key Words: Black pig, LRI Duroc pig, Reproductive performance

## 評估畜試紅公豬與配不同品種黑母豬之雜交後裔屠體性狀

評估畜試紅公豬與配不同品種黑母豬之雜交後裔屠體性狀

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本試驗與民間畜牧場進行產學合作，觀察畜試紅公豬(R)與配純種高畜黑母豬(K)及雜交黑母豬(B)之雜交後裔(KR 與 BR)屠體性狀，評估帶有最佳組合的雜交後裔。試驗屠宰24 頭 KR (閹公豬 13 頭與女豬 11 頭)與 24 頭 BR(閹公豬 13 頭與女豬 11 頭)，試驗將公母的屠體性狀分開計算，BR 閹公豬與女豬在屠體長( $103.31 \pm 3.04$  vs.  $99.62 \pm 2.75$  公分;  $104.82 \pm 2.27$  vs.  $100.82 \pm 3.06$  公分)、肉色評分(1~6 分制,  $t5.62 \pm 0.51$  vs.  $5.08 \pm 0.64$ ;  $5.36 \pm 0.50$  vs.  $4.64 \pm 0.50$ )、肌間脂肪評分(1~6 與 10, 7 級分制,  $t8.77 \pm 1.92$  vs.  $6.15 \pm 1.86$ ;  $7.73 \pm 2.16$  vs.  $5.18 \pm 0.98$ ) 與小里肌( $t0.59 \pm 0.07$  vs.  $0.51 \pm 0.07$  公斤;  $0.58 \pm 0.06$  vs.  $0.51 \pm 0.06$  公斤)皆顯著優於 KR( $P < 0.05$ )。民間畜牧場將純種黑母豬自行選拔，品種雜交改進之後作為母象豬，再與畜試紅公豬雜交，確實可改進屠體性狀，增加屠體長度與肌肉肉澤。

關鍵語:黑豬、屠體性狀、畜試紅豬

EVALUATION ON CARCASS TRAITS OF THE CROSSBRED OFFSPRING PRODUCED BY MATING BOARS OF LRI DUROC WITH VARIOUS BLACK SOWS

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This study was carried out under industry-academic cooperation, and its purpose was to evaluate which crossbred offspring (KR or BR) with the best combination in carcass traits following mating boars of LRI Duroc (R) with sows of KHAPS black pig (K) or hybrid black pig (B). Here, total of 48 offspring were sacrificed to collect carcass traits in KR (13 barrows and 11 gilts) and BR (13 barrows and 11 gilts). The carcass traits of barrows and gilts were calculated separately in both hybrids. The carcass length, muscle color score, marbling score and pork tenderloin either in barrows or gilts of BR were better than those of KR ( $P < 0.05$ ). Taken together, we found that the offspring BR had better carcass performance such as carcass length and muscular color score which were accomplished by the breeding method used in this study.

Key Words: Black pig, Carcass traits, LRI Duroc pig

生長性能檢定種豬之 X 與 Y 染色體微衛星標記交替基因數量研究

生長性能檢定種豬之 X 與 Y 染色體微衛星標記交替基因數量研究

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杜洛克(D)、藍瑞斯(L)及約克夏(Y)豬種之 70 日齡仔豬於新化檢定站進行生長性能檢定至體重

110Kg(母 100Kg) 或 160+7 日齡。本研究利用 201101 期至 201505 期等 36 期豬隻，總計 4,026 頭血樣，包括 D 公 2,113 頭、D 母 180 頭、L 公 974 頭、L 母 290 頭、Y 公 384 頭與 Y 母 85 頭。分析檢定豬性染色體的 14 個微衛星標記之交替基因型，微衛星標記分布在 X 染色體 1.1 至 128.4cM 位置順序為 SWR17、SW1325、SW1411、Sw2156、SW980、SW2470、SW1522、SW1426、SY11、S0117、SW1943、SN218、SW2059、SW2588，但分布在 Y 染色體 4.7 至 57.8cM 位置。不分品種及性別，14 個微衛星標記之交替基因(片段鹼基數)數目依序有 8、19、7、14、9、7、7、6、10、11、6、12、9、16 個。微衛星標記之交替基因間鹼基數長短(bp)依序為 142~160、115~165、51~89、155~185、114~130、160~172、124~168、90~100、161~189、157~187、101~113、81~111、172~200、100~166bp。選用有 19 個交替基因之 SW1325 來說明品種及性別差異，頭數最多的兩種基因型(鹼基數)在 D 公是 151+12 及 151+0、D 母是 151+12 及 151+4、L 公是 155+2 及 157+0、L 母是 155+2 及 155+0、Y 公是 153+2 及 155+0 與 Y 母是 155+0 及 153+2。不分性別，微衛星標記 SW1325 的交替基因在 D 品種以 151、155 及 163bp 居多；L 品種以 155 及 157bp 居多；Y 品種以 153 及 155bp 居多。性染色體的 14 個微衛星標記之交替基因型 資料如能作為品種內不同選拔品之基因條碼用，會有利於台灣種豬進行經濟性狀基因標記建置及選種。

**關鍵語:**種豬、遺傳標記、生長性狀

#### ANALYSIS OF ALLELIC VARIANTS FOR CHROMOSOME X AND Y-LINKED GENETIC MARKERS FROM PUREBRED PIGS UNDER GROWTH PERFORMANCE TEST

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Duroc (D), Yorkshire (Y) and Landrace (L) pigs at 70 days of age were tested for growth performance at Hsinhua Station. The off-tested age was on the weight of 110kg (100kg for gilt) or by 160+7 days of age. A total of 4,026 pig blood samples was collected during the sum of 36 classes from class 201101 to class 201505, in which were 2,113 D boars, 180 D gilts, 974 L boars, 290 L gilts, 384 Y boars and 85 Y gilts. Genetic markers on chromosome X located from 1.1 to 128.4cM and on chromosome Y located from 4.7 to 57.8cM were 14 loci in the sequence of SWR17, SW1325, SW1411, Sw2156, SW980, SW2470, SW1522, SW1426, SY11, S0117, SW1943, SN218, SW2059 and SW2588. Allelic variants for those 14 genetic markers were detected in all breed and gender as counts of 8, 19, 7, 14, 9, 7, 7, 6, 10, 11, 6, 12, 9 and 16 variants, respectively. The variation of DNA fragment size of 14 genetic markers were 142~160, 115~165, 51~89, 155~185, 114~130, 160~172, 124~168, 90~100, 161~189, 157~187, 101~113, 81~111, 172~200 and 100~166bp, respectively. Analysis on SW1325 to have 19 variants in various breed and gender by using a higher frequency of allelic genotype, there were 151+12 and 151+0 genotypes in D boars, 151+12 and 151+4 genotypes in D gilts, 155+2 and 157+0 genotypes in L boars, 155+2 and 155+0 genotypes in L gilts, 153+2 and 155+0 genotypes in Y boars, 155+0 and 153+2 genotypes in Y gilts. Major allelic variants of SW1325 regardless of gender were 151, 155 and 163bp in D, 155 and 157bp in L, and 153 and 155bp in Y, respectively. Utilization of allelic variants of 14 genetic markers on sexual chromosome as gene barcodes for various selection lines within breed, it could be beneficial to establish genomic databank on gene-linked economic trait for selection of pig breeds in Taiwan.



Key Words: Breeding pig, Genetic marker, Growth trait

### 純種豬檢定之生長性能拮數、體型及腳蹄之名次相關性探討

純種豬檢定之生長性能拮數、體型及腳蹄之名次相關性探討

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本試驗目的為，針對純種豬檢定之生長性能拮數、體型及腳蹄之名次進行相關性探討。試驗豬隻為從2011年3月23日至2015年10月23日止，共254頭財團法人中央畜產會中央檢定站完檢之有腳蹄名次種豬。純種豬檢定拮數100以上進行體型評鑑，分品種分性別體型評鑑有入選2頭(含)以上，再進行腳蹄評分，體型評鑑與腳蹄評分不同人員進行。每個項目依照名次分成三且，再應用卡方分布與簡單相關性進行分析。試驗結果如下：(1)體型、拮數及腳蹄三者之名次皆非獨立，就名次而言，體型與拮數、腳蹄與拮數及腳蹄與體型之間的Cramer's V測定值分別為0.57, 0.66 and 0.63，皆屬中高強度關聯。(2)就名次簡單相關係數而言，體型與拮數、腳蹄與拮數及腳蹄與體型之間的值分別為0.57, 0.66 and 0.63。

關鍵語：種豬、相關性測定、名次

STUDY ON THE CORRELATION OF RANKS AMONG TEST INDEX, BODY TYPE AND HOOF EVALUATION UNDER SWINE PUREBREED GROWTH PERFORMANCE TEST

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The purpose of this study was to examine the relationship of ranks among test index, body type, and hoof evaluation under swine purebred growth performance test. This study used 254 purebred swine with rank of hoof evaluation, which came from the Central Performance Test Station of National Animal Industry Foundation, the period was from March 23, 2011 to October 23, 2015. We evaluated body type from those purebred swine with test index up 100, then by sub-species and gender, if body evaluation has selected two (or more) purebred swine, to do hoof evaluation. Evaluation and review body type and hooves were by different personnel group. We divided the ranking of each item into three grades. The analysis tool was the Chi-Squared Test and Simple Correlation Test. The results were as follows: (1) According to Chi-Squared Test analysis, we rejected the hypothesis that the rank are independent among test index, body type, and hoof evaluation, As rank, the

Cramer's V test values of X<sup>2</sup> between test index and body type, test index and hoof evaluation and body type and hoof evaluation were 0.57, 0.66 and 0.63, respectively. There was moderate high association between the three items. (2) The correlation of ranks between test index and body type, between test index and hoof evaluation and between body type and hoof evaluation were 0.40, 0.46 and 0.37, respectively.

Key Words: Breeding pigs, Correlation test, Rank

## 畜試紅豬微衛星遺傳標記多態性分析

### 畜試紅豬微衛星遺傳標記多態性分析

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本試驗#63965;用 13 組FAO 建議可用#63789;分析#64022;基因多樣性之微衛星標記, 及2 組與杜#63765;克#64022;產仔性能相關之微衛星標記(OPN 與KS148), 進#64008;48 頭畜試紅#64022;個體DNA之分子遺傳標記分析。結果顯示, 15 組微衛星遺傳標記分析中, 只有1 組無多態性, 其餘14 組皆有多態性, 其中9 組呈現高多態性訊息 (PIC 0.5), 5 組呈現中多態性訊息 (0.5 > PIC 0.25), 只有1 組呈現低多態性訊息 (PIC 0.25)。試驗檢測共得70 個交替基因, 平均每個標記具有4.7 個交替基因 (1~12 個), 其觀測#63842;質#64001;介於0~0.787, 平均為0.566; 期望#63842;質#64001;介於0~0.875, 平均為0.537; 而多態性訊息含#63870;介於0~0.752, 平均為0.508。整體而言, 畜試紅#64022;之基因多樣性為高#64001;多態性, 但仍須注意基因多樣性的維持。

關鍵語: 遺傳多樣性、畜試紅豬、微衛星標記

## EVALUATING GENETIC DIVERSITY OF LRI DUROC PIGS BY MICROSATELLITE MARKERS

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A total of 15 microsatellite markers, 13 markers recommended by FAO and 2 markers (OPN and KS148) related to the litter performance of Duroc, were used to evaluate the genetic diversity of 48 LRI Duroc pigs. The results indicated that only one marker showed no polymorphism and the other 14 markers showed polymorphisms. Based on the polymorphism features, 9 markers with high polymorphism information contents (PICs), 5 markers with moderate PICs, and the other one with low PIC have been identified. The values of total allele number, observed heterozygosity (Ho), expected heterozygosity (He), and polymorphism information content ranged from 1–12, 0–0.787, 0–0.875, and 0–0.752, respectively. The average values of allele number, Ho, He, and PIC were 4.7, 0.566, 0.537, and 0.508, respectively. Overall, the LRI Duroc pig population has high genetic diversity, but the maintenance of genetic diversity of this pig population should be

concerned.

Key Words: Genetic diversity, LRI Duroc pig, Microsatellite marker