



STRATEGIES and PROSPECT of NATIVE PIG BREEDING in the PHILIPPINES



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Outline of presentation

- The Philippine Native Animals
- Animal Genetic Conservation (FAO)
- Breeding strategies and practices
- Utilization of Phil. native animals
- Conclusion

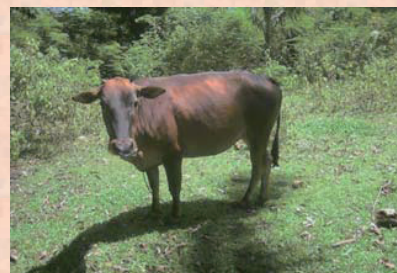


47

Philippine Native Animals



Philippine Native Animals



DA Administrative Order No. 15 s. of 2010 .. Signed August 2, 2010

- Established the Program for the Conservation and Utilization of Domesticated Native Food Animals



~48~

- The Global Plan of Action for Animal Genetic Resources (FAO, 2007) recognizes that "A good understanding of breed characteristics is necessary to guide decision-making in livestock development and breeding programmes"

Native pigs in Kalinga Province.



- Native pigs roam freely
- no housing provided.
- Pigs are fed rice bran, root crops and mixed kitchen wastes.
- No health care is given
- uncontrolled mating is common
- Most of the families' raise a sow with offspring's being grown for special family celebrations.

DEVELOPMENT AND COMMERCIALIZATION OF SELECTED STRAINS OF PHILIPPINE NATIVE PIGS

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Rationale

The present and future changes in socio-economic and environmental conditions may provide a shift in breed preference in favour of the native pigs both for raisers and consumers. Strategic actions must be taken to conserve the local pigs and perpetuate the species for a sustainable food supply.

The changing environmental condition is a global concern and is already being felt here in the country. Native pigs fit well in this harsh environment, thus it is assumed that they will survive and reproduce with minimal inputs making them more viable for small-scale enterprises.

The Bureau of Animal Industry with funding from the Bureau of Agricultural Research spearheaded the project entitled "Conservation, Evaluation, and Commercialization of the Philippine Native Pigs" in 2008. These developments have led the conceptualization of a this project that will cover more native pigs found in various areas of the country. Being an archipelago, the country is home to native pigs which contribute to our rich biodiversity. This must be protected and conserved.

This project is also one of the strategic action plans in response to Administrative Order No. 15 series 2010 approved by Honourable Secretary Processo J. Alcala which is to strengthen the conservation effort and promote utilization of the Philippine native animals.

General Objective

To characterize, conserve and determine the importance of the Philippine native pigs in selected areas of the country

Specific Objectives

- To characterize the different native pigs found in selected areas of the Philippines
- To determine the socio-economic importance of native pigs
- To determine the production performance of different strains of native pigs

Expected Output

Availability of baseline data on the production performance of Philippine native pigs from selected areas of the country

Results:



Table 1. Economic profile of native pig raisers.

Parameters	PROVINCES				
	ABRA	KALINGA	MT. PROVINCE	QUEZON	MARINOUQUE
No. of sows raised (head)	1-2	1-4	1-2	1-2	1-2
Market of native pigs (kg)	Neighbours	Neighbours	Neighbours	Neighbours	Neighbours
Time of raising pigs (hrs)	10 and below	10 and below	10 and below	10 and below	10 and above
Market of weaners (kg)	35 and below	35-40	41 and above	41 and above	41 and above
Production system	Tethered	Free ranging	Confined	Confined	Tethered

Table 2. Reproductive performance of native pig in Abra, Kalinga, Mt. Province, Quezon, Marinduque

Parameters	PROVINCES				
	ABRA	KALINGA	MT. PROVINCE	QUEZON	MARINOUQUE
Signs of estrus (mcs)	6-8	Not observed	6-8	6-8	6-8
Age of 1 st mating (mcs)	10-20	Not observed	10-15	7-8mcs	6-20
1 st parity (mcs)	10-20	Not observed	Above 25	25-31	12-36
Sow productivity index	2	1	2	2	2
Marketing period (mcs)	10	10	10	10	10
Ave. litter size at birth	1.82	5.95	6.00	6.08	7.32
Ave. litter size at weaning	0.40	0.23	0.40	0.28	0.62

Table 3. The anatomical characteristics and measurements of five native pig

Parameters	PROVINCES				
	ABRA	KALINGA	MT. PROVINCE	QUEZON	MARINOUQUE
Characteristics	Head (cm) 40.00	Head (cm) 40.00	Head (cm) 40.00	Head (cm) 40.00	Head (cm) 40.00
Ear type	Small (0.12m)	Small (0.12m)	Small (0.12m)	Small (0.12m)	Small (0.12m)
Ear length (cm)	45.12(0.23)	48.00(0.25)	42.77(0.24)	79.00(0.50)	56.10(0.42)
Ave. head length (cm)	30.12(0.15)	31.51(0.16)	34.00(0.18)	38.00(0.18)	37.80(0.18)
Ave. ear length (cm)	17.12(0.11)	13.12(0.15)	12.12(0.18)	18.00(0.12)	17.40(0.20)
Ave. chest girth (cm)	58.00(0.13)	60.00(0.16)	60.00(0.16)	102.00(0.20)	65.00(0.16)
Ave. body length (cm)	40.00(0.14)	37.00(0.17)	44.12(0.15)	58.12(0.19)	47.00(0.12)
Ave. leg length (cm)	41.25(0.14)	52.25(0.16)	53.00(0.15)	64.00(0.20)	58.75(0.12)
Ave. body weight (kg)	17.12(0.15)	24.12(0.18)	23.00(0.18)	125.12(0.21)	28.12(0.15)
Ave. test number	11.85(1.87)	15.75(2.48)	11.85(1.94)	12.50(1.34)	11.75(1.17)
n	134	140	140	261	238

Table 4. The anatomical characteristics and measurements of four native pigs

Parameters	PROVINCES				
	ABRA	KALINGA	MT. PROVINCE	QUEZON	MARINOUQUE
Characteristics	Head (cm) 40.00	Head (cm) 40.00	Head (cm) 40.00	Head (cm) 40.00	Head (cm) 40.00
Ear type	Small (0.12m)	Small (0.12m)	Small (0.12m)	Small (0.12m)	Small (0.12m)
Ear length (cm)	33.00(0.24)	42.51(0.27)	53.54(0.37)	77.00(0.52)	58.00(0.41)
Ave. head length (cm)	27.00(0.10)	25.00(0.10)	25.54(0.21)	38.00(0.16)	27.00(0.12)
Ave. ear length (cm)	23.70(0.10)	20.00(0.14)	20.77(0.13)	28.00(0.20)	26.00(0.12)
Ave. chest girth (cm)	74.00(0.28)	78.00(0.18)	88.75(0.14)	98.00(0.28)	84.00(0.18)
Ave. leg length (cm)	37.00(0.25)	34.70(0.30)	48.75(0.23)	51.25(1.17)	37.00(0.17)
Ave. body weight (kg)	33.00(0.16)	42.00(0.18)	48.00(0.18)	140.00(0.28)	37.00(0.16)
Ave. body length (cm)	43.00(0.16)	47.00(0.18)	49.00(0.18)	115.00(0.42)	49.00(0.16)
Ave. test number	11.00(1.00)	10.00(1.00)	11.00(1.00)	12.00(1.00)	11.00(1.00)
n	30	62	10	52	60



Characteristics (FS)	Male n=12	Female n=12
Coat color (%)	Black 91.66	Black 91.66
Ear type	Semi-lop 75.00	Semi-lop 83.33
Backline	Straight 100	Straight 100
Head length (cm)	21.58±1.83	21.75±1.54
Chest girth (cm)	67.83±3.56	67.42±5.18
Leg length (cm)	27.58±3.15	27.67 ±2.99
Body length (cm)	69.83±4.15	68.17±6.12
Height (cm)	43.75±3.86	44.92±3.65
Teat number (pair)	6.41±0.99	6.25±0.68
Ave weight (kg)	26.88±4.95	25.61±4.88

24 heads were subjected to phenotypic characterization at the age of six month from birth



Characteristics	Male		Female	
	FS	G2	FS	G2
Birth weight (kg)	0.78 n=14	0.92 n=7	0.80 n=9	0.74 n=12
Live weight at 1 mo. (kg)	4.37±0.69	5.90±0.69	4.39±1.24	5.06±0.65
2 mos. (kg)	5.09±0.84	6.75±1.38	6.75±1.38	6.01±0.68
3 mos. (kg)	7.05±1.75	8.80±1.13	8.80±1.12	8.10±1.03
4 mos. (kg)	13.6±2.72	14.70±2.34	14.70±2.34	12.60±2.02
5 mos. (kg)	18.8±1.97	21.15±2.70	21.15±2.71	19.30±2.78

~49~

Reproductive Performance of Bundok Peninsula Strain

	1st	2nd	3rd	
Number of Sows farrowed	16	9	12	28
Piglets born alive	88	62	82	170
Sex				
Male %	59.52	40.32	47	48.95
Female %	40.48	59.68	35	51.05
Ave. piglets born alive	5.50	6.89	7.61	6.35
Ave. Pre weaning mortality %	3.57	9.68		6.60
Ave. Weaning Age	46	46	45	46
Ave. Weaning Weight	5.27	5.35	5.44	5.35
Ave. Litter Size at weaning	5.30	6.46	6.61	6.12
Percent Livability 0-45 days	96.43	90.32		93.38
Ave. gestation period	114	114	114	



Philippine Native Pig

NATIVE

PIGS

- Stocks are product of 1998 collection of different strain of native pigs from
 - Benguet,
 - Marinduque,
 - Quezon.
- Selection based on some traits and qualities i.e. weight gain, litter size, body conformation, and color (black)
- Kalinga strain was acquired in 2008 in Tinglayan, Kalinga,
 - five (5) female and one (1) male, succeeding stock from Tabuk Kalinga



Selection Criteria/Strategies

- Native pigs: nsprdc 2000
- Average litter size > 8 piglets
- Weaned piglets per litter > 7 piglets
- Weaning age 45 days
- Body Weight at 12 weeks old (BW12)
- Body weight at 20 weeks old (BW20)



~50~

Application of Genetics

Semen collection of Philippine Native Pig at BAI-NSPRDC.



Projects

“Conservation, Improvement and Profitable Utilization of Philippine Native Pig” project funded by PCAARRD and implemented by BAI-NSPRDC



Average Performance of Native pigs

NSPRDC 1999 : 2012

• Average litter size	6.5	8.2	piglets
• Average birth weight	634	700	grams
• Weaned piglets per litter	-	6.75	piglets
• Weaning age	60	45	days
• Ave. weaning weight	7.49	7.20	kgs.
• Ave. live weight 2 mos	7.49	9.00	kgs
	3	11.19	18.2 kgs
	4	-	25.00 kgs
	5	-	38.30 kgs



BT- BLACK PIG Philippine Native Pig Good Litter Size and Mothering Ability



Production Characteristic		Philippine Native Pigs BT Black Pig Good litter size and mothering ability Primary utilization: Meat specifically for "lechon production"	
Age at first mating, weeks	24	It has long cylindrical snout with straight head profile, the ear is semi lop, it is black in color with smooth skin and straight backbone.	
Age at first farrowing, weeks	39		
Ave. litter size alive, hds	8		
Ave. birth weight, kg	0.80		
Weaning age, days	41.28		
Litter size at weaning, hds	6		
Gestation period, days	114		
Farrowing rate, %	90		
Feed Efficiency			
Feed consumption 0-7 weeks, kg	6.30		
Feed consumption 7-20 weeks, kg	140		
Average daily feed intake per hd, g	900		
Ave. daily gain 6-30 weeks, g	172		
*with ad libitum forage and grasses			
Body weight	M	F	
At 6 weeks of age	4.48	4.23	
At 8 weeks of age	7.03	6.41	
At 12 weeks of age	13.16	12.53	
At 16 weeks of age	18.05	17.90	
At 18 weeks of age	25.55	24.22	
At 20 weeks of age	31.20	30.02	



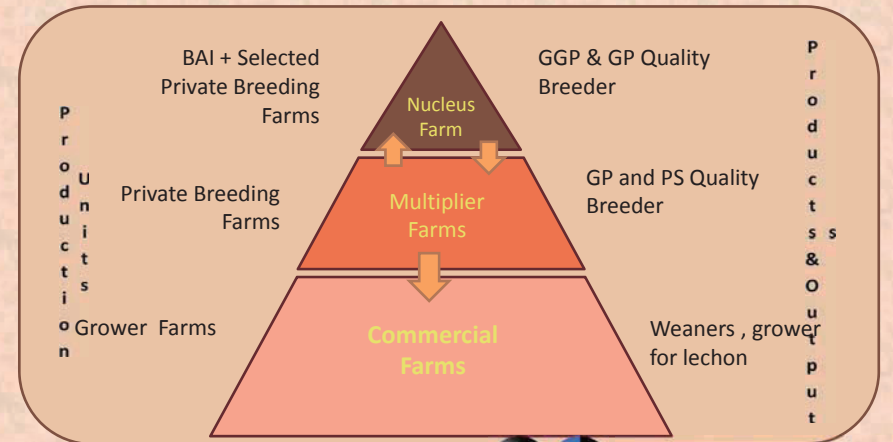
BT- KALINGA Philippine Native Pig Good Mothering Ability and Hardy



Production Characteristic		Philippine Native Pigs BT-KALINGA Native Pig Good mothering ability and hardy Primary utilization: Meat, ritual and other Socio-Cultural Practices	
Age at first mating, weeks	22	Black with white legs (socks) some with white under belly, white in forehead and tail. Ears are small and erect with long and thin snout, swayback with belly almost touching the ground.	
Age at first farrowing, weeks	37		
Ave. litter size alive, hds	6		
Ave. birth weight, kg	0.700		
Weaning age, days	46		
Litter size at weaning, hds	5.36		
Gestation period, days	114		
Farrowing rate, %	90		
Feed Efficiency			
Feed consumption 0-7 weeks, kg	5.75		
Feed consumption 7-20 weeks, kg	115		
Average daily feed intake per hd, g	639		
Ave. daily gain 6-30 weeks, g	146.4		
*with ad libitum forage and grasses			
Body weight	M	F	
At 6 weeks of age	3.94	3.74	
At 8 weeks of age	4.90	4.31 7.65	
At 12 weeks of age		7.34	
At 16 weeks of age	13.75	12.91	
At 18 weeks of age	16.55	15.45	
At 20 weeks of age	18.58	17.38	



Pyramidal Breeding Structures (native Pig)



Prospect of Raising Native pigs



- Prepared breeds for “lechon” (roasted pig) ave. weight 15-25 kgs lwt.
- High demand for native pigs due to its particular (pinoy) taste (lechonero)
- High value P 150.00 -180.00 per kg live wt.
- adapted to local condition, can be raised in far barangay’s with minimal inputs
- Economic traits (e.g. growth, litter size, good taste) can be improved through selection
- Ideal breeds for natural or organic pork (pig) production

“Improvement of Processing Technologies for Meat and Skins from Selected Strains of Native Pigs”

DA-BAR and (APDC).

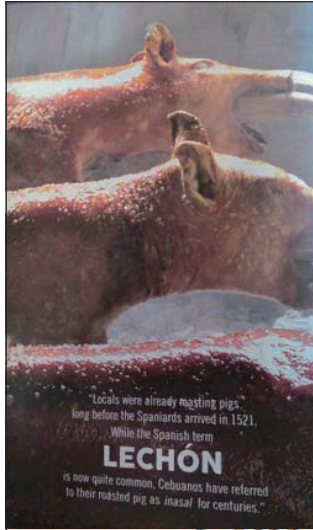


Products and Prospect of Native Pig



Conclusion

- A good understanding of breed characteristics is necessary in livestock development and breeding programmes
- FAO Action Plan on characterization (phenotypic and genotypic) is suggested guide for breed development
- Breeding criteria/strategies has to be in place for breed development and improvement
- Establishment and maintenance of breeder farms (gov,t/farmers)
- Conservation with utilization is a must for breed sustainability



"Locals were already eating pigs long before the Spaniards arrived in 1521. While the Spanish term **LECHÓN** is now quite common, Cebuanos have referred to their roasted pig as *masal* for centuries."

SALAMAT PO...

