



MANIPUR PIG BREEDING POLICY

**DEPARTMENT OF VETERINARY AND
ANIMAL HUSBANDRY SERVICES,
GOVERNMENT OF MANIPUR**

MANIPUR PIG BREEDING POLICY

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Manipur Pig Breeding Policy

1. Introduction

The pig currently available in Manipur are the result of haphazard breeding within and between various breeds such as Hampshire, Large White Yorkshire, and indigenous non-descript pigs. The improved pure breeds like pure large white Yorkshire and Hampshire were introduced for crossbreeding, resulting a higher yield and improved performances. But these breeds/crossbreeds have been developed without following any systematic and scientific breeding programme which results in inbreeding problems and poor performances overtime even under optimum feeding condition. Due to unplanned breeding practice in rural areas indigenous non-descript pig breeds of Manipur is declining. The bulk of indigenous germplasm are with poor growth rate and productivity but they have some genetically inherited good traits like dark coat colour, good mothering ability, stress tolerance and resistance to parasites and diseases and low nutrient requirement. Moreover, the meat of these indigenous germplasms is preferred by local population. Thus, conservation of this indigenous breeds has become utmost important. So to address the above issues and to develop pig breeds/crossbreeds that are appropriate, adaptable and productive in the context of Manipur, a scientific intervention in assessing the profile of existing germplasms, correlating them with production performance and identifying the desired breed(s) for Manipur are very much necessary for the state. This can rightly contribute in framing a breeding policy for the state of Manipur.

Aimed at improving the genetic trait of the existing swine population of the state in the interest of the common farmers' economic sustainability through piggery; the Government of Manipur, Department of Veterinary & Animal Husbandry, do hereby develop a pig breeding policy known as the "Manipur Pig Breeding Policy".

2. Jurisdiction and definition

It shall be called the "Manipur Pig Breeding Policy" which shall become effective from the date of its legislation by the Manipur State Legislative Assembly and follow up notification. The "Manipur Pig Breeding Policy" shall be effective all over the state of Manipur.

Definition:

Breed: A group of animals related by descent and similar in most characters like general appearance, features, size, configuration, etc. are said to belong to a 'BREED'

Animal Breeding: The science of animal breeding is defined as the application of the principles of genetics and biometry to improve the efficiency of production in farm animals. Animal breeding in this case- contextually, is producing improved breeds of domesticated pigs by improving their genotypes through selective mating.

Manipuri Indigenous Pigs: Any or all the animals classified under the term, swine, that has been inherently in existence indigenous within the state and reared as domestic pigs by the people of Manipur.

3. STATE PROFILE

3 (a) Geographic, agro-climatic conditions and demographic pattern:

Manipur is situated in the North Eastern region of India with an area of 22,327 sq km and is the 23rd largest state of India. The state is a hilly region with a natural green hills and landscape. It is perfectly located on the slopes of the Himalayas making it one of the most beautiful sites in the country. The state shares 353 Km long International boundary with Myanmar on the east, and with other states like Nagaland to the north, Mizoram to the south and Assam to the west. The state stretches between 23^o83 degree and 25^o68 degree north latitude and 93^o03 degree and 94^o78 degree east longitude. The state has 16 districts spread over the state. The tropic of cancer passes by very closely to the southern boundary of the state of Manipur. The state also has about 967 kms of national highways, with NH-39, NH-53 and NH 150 connecting it to Nagaland, Assam and Mizoram respectively. It is also a growing transit point for trade with Myanmar.

Manipur is basically a hilly region which covers around 90%, accounts for 41.10% while valley comprises of around 10% of the total area of the state accounts for 58.90% of total population. It has a population of 2,721,756 with sex ratio of 992 females per thousand males higher than the national ratio of 940 .The literacy rate of Manipur in 2011 was 79.85 per cent. About 32.50 % of Manipur lives in urban areas.

Lying 790 meters above sea level, Manipur is wedged among hills on all sides. This northeastern corner of India enjoys a generally amiable climate, though the winters can be a chilly. The maximum temperature in the summer months is 32 C. In winter the temperature often falls below 0 C, bringing frost in hilly regions. The coldest month is January, and the warmest July. The state is drenched in rains from May until mid-October. It receives an average annual rainfall of 1,467.5 millimetres. Rain distribution varies from 933 millimetres in Imphal to 2,593 millimetres in Tamenglong. Administrative division of Manipur consists of 16 districts out of which 5 Districts are in valleys.

3(b) Livelihood: Manipur is an economically backward state having a per capita income of Rs 36,290/- in 2012-13. The 52 per cent of the total working population is engaged in agricultural activities. Weaving and sericulture are other important traditional means of livelihood in the valley. In the hills, cultivation of a few cash crops, handloom and handicrafts are the traditional sources of income. Rice remains the main crop grown in Manipur by gross value of output. Animal husbandry has been inherently associated with the agriculture farming community for livelihood.

3 (c) Pig statistics

The state pig population as per the XIXth Livestock Census 2012 is 277215 of which 182546 are Exotic/crossbreds and 94669 are indigenous. District wise pig population is shown in Table 1.

Table 1. District wise population of pig (As per 2012 Livestock Census in Nos.)

Sl.No	Name of district	Exotic/Crossbred	Indigenous	Total pig
1.	Bishenpur	14981	64	15045
2.	Chandel	16553	5303	21801
3.	Churachandpur	24538	15232	39775
4.	Imphal east	16464	14532	31096
5.	Imphal west	14020	7445	21465
6.	Senapati	25661	18478	44139
7.	Tamenglong	16000	9104	25104
8.	Thoubal	43388	11504	54932
9.	Ukhrul	10941	12807	23748
	TOTAL	182546	94669	277215

Note: The information of 7 newly created districts is not included.

3 (d) Pig Rearing System

Pig farming in Manipur is typically divided into two systems - backyard pig farming seen in the villages and intensive farming seen in the organized farms. The village and traditional farming is characterized by small numbers of pigs reared by the subsistence farmers, either in a small confined pigsty constructed usually with locally available materials wood and bamboo gathered near the house.

Farmers of this region have evolved a self-sustainable local resource based production system, in which pigs are mainly dependent on local vegetation, crop residues and kitchen waste. This system aims to get medium output from nearly zero input and mostly based on the locally available resources. Feeds consist of mainly kitchen wastes, Vegetables - rice, rice bran, maize, and wild weeds, leaves, etc. Floor and grains are used to supplement for fattening.

Although the local small, indigenous pigs have been steadily replaced with improved crossbreds over the years, pig production is still largely traditional. The traditional methods involves feeding different forages combined with garden and kitchen waste all cooked with firewood.

Feeding of balanced concentrate feeds, protein rich feeds, required mineral and vitamins mixture are still not a common practice due to financial constraints and lack of scientific management knowledge. Thus, this traditional method of pig rearing do not provide adequate nutritional requirement of the pigs which hamper the growth rate and health of the pig as a whole. This leads to the less economic return to the pig farmers.

3 (e) Characteristics of major pig breeds

(i) **Large White Yorkshire (LWY)**: It is a native breed of U.K imported to India from U.K, New Zealand, and Australia. It is large in size with a long and slightly dished face. Body is covered with fine white hairs, free from curls. Skin is pink in colour and free from wrinkles with long and moderately fine coat. Ears are thin, long

and slightly inclined forward and fringed with fine hair. Neck is long and full to the shoulders with deep and wide chest, shoulders are not too wide. Back is slightly arched, and loins are long and broad with a well developed wide rump. Ham is fleshy extending up to hocks. Tail is set high. Pasterns are strong and straight with clean feet. It has the capacity to thrive well under different climatic conditions that is why it is extensively use for crossbreeding and breed upgradation.

(ii) Hampshire : This breed has been developed in the U.S.A and is now one of the world's most important breeds. The Hampshire is a black Hog with a white band around the body at the shoulder including the front legs and feet. The head, tail, legs and back are black. The ears are erect and the face is longer and straighter compared to other breeds. Hampshire sows are very prolific, have extra longevity, and make good mothers. They have been used extensively in crossbreeding because of their good carcass quality- popular for their lean, meaty carcasses. They were noted and criticized for their large size, but admired for their prolificacy, hardy, vigour, foraging ability and outstanding carcass qualities. Sows give birth to a large litter of 10 piglets with 1 kg birth weight, but some sows have been known to have litters of up to 16 piglets. A boar weigh 230 kg to 340 kg and sows around 200 to 290 kg.

(iii) Large White Yorkshire cross: LWY breed is frequently crossed with local variety to generate a composite breed called improved breed by the process called upgradation to produce a good blend of superior exotic germ plasm. LWY crosses have good mothering ability and good Prolificacy with average litter size of 7 numbers which increases following subsequent farrowing.

(iv) Hampshire cross local: They are black in colour with the typical white belt covering the shoulder portion including the forelimbs extending till the pastern. It is most preferred by the locals and are very popular in the state. It attains puberty at 8 months of age. Sows exhibit strong maternal instinct with exceptional nursing ability. Average litter size at first farrowing is 6 nos. which increases in the range of 7-12 during subsequent farrowing. The adult live weight of local Hampshire crosses is 140 kg for breeding boars and 120 for that of sows.

(v) Manipuri pig (Indigenous pig): This is a small size native pig found in Manipur. They are predominantly black in colour with pot bellied appearance. The mature body weight ranges between 35 to 45 kg and litter size about 5 to 8 nos. This pig has coarse, thick and straight hairs. These pigs are mainly raised in backyard and semi- intensive system. They have good mothering ability, early maturity, tolerance and resistance to parasites and diseases and low nutrient requirement. The meat of local pig is in high demand due to lean meat and favourable taste. This breed/variety is yet to be characterized with proper scientific intervention. There is a gradual decrease in the population of Manipuri local pigs due to heightened interest of farmers towards fast growing crossbreeds pigs. So, proper documentation and conservation of this breed with proper strategy is gravely important.

4. STATUS AND INFRASTRUCTURE OF A.H & VETY DEPARTMENT

Sl. No.	Name of the Officers / Institution	Nos.
1	Directorate Office (Head Office)	1
2	District Veterinary Office at District Head Quarters	9
3	Sub-Divisional Offices at Moreh, Jiribam & Kangpokpi	3
4	Project Office (intensive Cattle Development Project – ICDP)	1
5	Veterinary Hospitals	55
6	Veterinary Dispensary	109
7	Veterinary Aid Centres	34
8	ICDP Sub – Centres	81
9	Institutes having A.I. facilities	255
10	Regional Main A.I. Centres	5
11	Frozen Semen Banks at Porompat & Kakching	2
12	Liquid Nitrogen Plants at Porompat & Kakching	3
13	Cattle Breeding farm at Turibari	1
14	Buffalo Breeding Farm at Wabagai	1
15	Pony Breeding Farm at Tingkaikhunou	1
16	District Piggery Farm	6
17	Composite Livestock Farm	1
18	Poultry Farm (Layer / Broiler)	2
19	Duck Farm	1
20	Fodder Demonstration farm	1
21	Feed Mixing Plant	1
22	Central Dairy Plant	1
23	Milk Chilling Plant	2
24	Veterinary Field Assistant Training Centre	1
25	Composite Demonstration Units	2
26	Central Vaccine / Medicine store	1
27	State Disease Investigation Laboratory	1
28	District Disease Investigation Laboratory	3
29	Angora Rabbit Germplasm Farm	1

5. Institutional Structure and Manpower Department of Veterinary & Animal Husbandry Services, Manipur

Director

Directorate Of Veterinary & Animal Husbandry

Jt. Dir. (Adm.)

Jt. Dir. (Plg.)

Hospt. Superintendent

Dy. Directors/Project Officers

Specialists/Veterinary Officers

■ DISTRICT VETY. OFFICE ■

Imphal West / Imphal East

Jt. Dir.
Dy. Dirs.
Vety. Officers

Bishnupur / Thoubal / Churachandpur

Jt. Dir. Jt. Dir. Jt. Dir.
Specialists Specialists Specialists
Vety. Officers Vety. Officers Vety. Officers

Senapati

Jt. Dir.
Specialists
Vety. Officers

Ukhrul

Jt. Dir.
Specialists
Vety. Officers

Tamenglong

Jt. Dir.
Specialists
Vety. Officers

Chandel

Jt. Dir.
Specialists
Vety. Officers

Jiribam

Jt. Dir.
Specialists
Vety. Officers

Kangpokpi

Jt. Dir.
Specialists
Vety. Officers

Kakching

Jt. Dir.
Specialists
Vety. Officers

Tengnoupal

Jt. Dir.
Specialists
Vety. Officers

Kamjong

Jt. Dir.
Specialists
Vety. Officers

Noney

Jt. Dir.
Specialists
Vety. Officers

Pherzawl

Jt. Dir.
Specialists
Vety. Officers

Project Officer (ICDP) Composite Farm

Project Officers Project Officers
Specialists Vety. Officers
Vety. Officers

BUFFALO FARM PONY FARM

Project Officers Project Officers
Vety. Officers Vety. Officers

Pig Breeding Farm, Turibari/Torbung

Vety. Officers

Cattle Farm

Project Officers
Vety. Officers

Dairy Plant

Deputy Dir.
Vety. Officers

Sub. Div. Office, Moreh

Deputy Dir.
Vety. Officers

Poultry Farm, Mantripukhri/Khumbong

Specialists
Vety. Officers

Broiler Project, Porompat/Khumbong

Specialists
Vety. Officers

Duck Farm, Thenguchingjin/ Lamphelpat

Specialists
Vety. Officers

6. CONSTRAINTS AND LIMITATIONS:

Pigs have a deep Socio-economic and cultural importance to the livelihood of the tribal and schedule caste populations of Manipur. Pork is the most favoured meat among the "tribes" and there is no religious taboos related to pork consumption among them. Recently, there is increase in the acceptance of pork among other communities in the state. And, also there is evidence of increased Pig rearing and consumption of Pork which is mainly met from local farmers across all the communities; there is an increasing demand of Piglets every year. The per capita availability of meat in Manipur is 23.08 g/person/day against the requirement of 30 g/person/day (ICMR).

Despite the efforts given by the A.H &Vety Department to promote Pig Farmers to rear breeding sows, most of the farmers intend to rear fatteners which result in non or less production of Piglets in the State. However as the demand of Pork increases, Scientific Pig Farming may be encouraged to fill up the demand-supply gap. Thus, the followings are constraints and limitations identified for slow pace of development in Pig husbandry in the State –

1. Huge gap between needs and supply of piglets.
2. High cost of balanced and commercial Feeds as concentrate are too expensive and farmer can't afford it.
3. Shortage of animal/pig resource based Farmers, no parental stocks. Replacement of stocks could not be made available in department farm due to non-availability of fund, as all revenues earned are accounted to Government Account.
4. High housing cost and suitable scientific housing pattern not available.
5. Poor pig productivity/potential.
6. The occurrence of swine fever had greatly affects the pig population with high mortality.
7. Lack of knowledge, extension works and management skill.
8. The traditional practice followed to feed pigs with forages, wild leaves, shrubs, herbs collected from locally available areas combined with kitchen and garden waste being cooked and fed as a wet slop, but found to be nutritionally inadequate for optimum production. This necessitates the proper scientific studies to formulate the suitable combinations of these locally available feed ingredients.
9. No organized breeding infrastructure.
10. Absence of designed breeding programme and planning results in inbreeding.

7. OUTLINE OF STATE BREEDING POLICY FOR MANIPUR :

Pig farming in Manipur can be augmented by adopting scientific approaches feasible to the local conditions. The concept designed is a two way, adopting the Farm Policy and the Farmers.

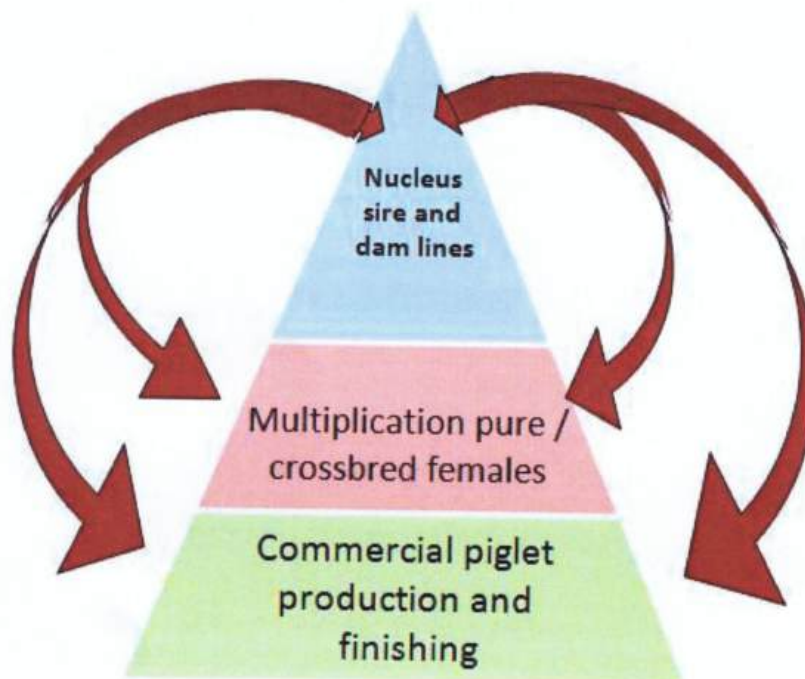
The followings are taken into account in the Breeding Policy –

- (i) Pig Population Dynamic
- (ii) Litter size
- (iii) Litter Index (The litters per sow per year)
- (iv) Economics
- (v) Feed Conversion Ratio
- (vi) Preference and likes of the Local

Objectives :

- i) Genetic improvement through selective breeding.
- ii) Characterization and Conservation of indigenous pig germplasm.
- iii) Genetic upgradation of local pig upto the desired level of exotic inheritance.
- iv) Expansion and strengthening of Breeding Infrastructure and support mechanism to propagate elite germplasm through A.I.
- v) To establish Regional Boar Semen Station for maintaining the semen of the chosen breed (s) or cross-bred.

BREEDING PYRAMID



BREEDING POLICY:

1. Indigenous pig germplasm, where no crossbreeding shall be applied, the germplasm of this breed shall be established and preserved.
2. Nucleus breeding farm for such pig shall be established.
3. Elite animals should be collected from farmers field/State Farm to the Nucleus herd.
4. Pedigreed animals need to be propagated only to interested / progressive farmers who want to rear indigenous germplasm. However, Govt. should ensure necessary incentive and scientific nutritional and managerial practices to these farmers. For this, rate of piglet and pork of indigenous pigs may be fixed at higher values as compared to other pork by the Govt.
5. Artificial Inseminations should be delivered through Private Inseminator who is to be trained by the Department.
 - A. **CROSS BREEDING** : Cross breeding may be propagated through selective breeds of Large White York shire and Hampshire.

BREEDING POLICY (crossbreeding)

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BREEDING POLICY (crossbreeding)

LEVEL	JURISDICTION	ACTIVITIES
Nucleus Farm	<ul style="list-style-type: none"> • State level Nucleus in 4-5 per) regions as per pig population Of the state and demand of pork 	The corresponding Nucleus Farm will maintain Great Grand Parent (GGP) and Grand Parent (GP) stock of corresponding varieties
Multiplier	<ul style="list-style-type: none"> •Multiplier farm will consist of state Govt. farms, central Govt. farms and Institute farms • (Each district of a region will have minimum two such kind of farm) 	The Multiplier Farm will maintain Grand Parent (GP) and Parent (P) stock of corresponding varieties
Farmers' Field	<ul style="list-style-type: none"> • Mass scale propagation of region specific variety at farmers field and the local large/medium scale entrepreneurs (Commercial farm) should be monitored by District level multiplier farm 	Regular monitoring and cooperative based marketing may be ensured for better economic return

Figure: Schematic diagram for pig breeding programme

B. BREEDING WITH EXOTIC GERMPLASM :

1. Import of germplasm of Large White Yorkshire and Hampshire from sources which are free from scheduled Diseases.
2. Import of Live Animals may be considered at regular intervals at a first primary strategy with import of Semen as a secondary option, in improving and upgrading Herd Quality.
3. A suitable strategy for breed-specific nucleus herd improvement may be developed for subsequent programmes.

BREEDING PLAN :

(A) Nucleus Farm:

1. Nucleus farm should be of pure exotic breed, well-developed crossbred or pure indigenous breed.
2. Crossbred animals of desired level of exotic inheritance should be maintained. In case of nucleus herd of pure animals, mixing/crossing of germplasm must be restricted.
3. Minimum 30 breedable sows unit should be maintained with a sex ration 1:3 and thus 10 sires (2 sires from each 5 unrelated sire lines) need to be maintained by each of the unit.
4. Selection of male animals should be based on weaning weight (best 25%) and 8 month body weight (best 5%), based on two stage sequential selection. Selection of female animals should be based on dam's litter size at birth (>7) and weaning weight (best 25%) and number of functional tests (at least 6 pairs of functional tests). However, these can be changed as per performance of local crossbred animals.
5. Centralized data recording system should be initiated. Generation wise genetic evaluation may be carried out to estimate the response to selection. The overall genetic gain due to selection, selection differential and heritability should also be calculated.
6. Inbreeding should be avoided. Replacement of boars need to be done at regular interval of 2 years of productive herd life. Sire exchange programme among the farms will also be helpful to reduce the inbreeding effect. Culled male animals should be castrated before selling to avoid indiscriminate breeding.
7. Three numbers of farrowing per sow need to be recorded. Three farrowing per sow should be completed in 2 years.
8. Weightage of selection need to be given on litter size and weight at birth and weaning.
9. Besides routine productive, reproductive, adaptive and carcass traits lifetime production traits should also be recorded.

(B) Multiplier and Farmers' Farm:

Breeding plan for multiplier and farmers' field should be a separate one from that of nucleus farm. They are only to make inter-se-mating among the developed pure bred or crossbred animals. No indiscriminate crossbreeding is allowed at farmers' field.

(C) Mating system:

All the breeding propagation activity should follow Artificial Insemination (AI) practice. To achieve the target the State level Multiplier farm must have a training center for the local farmers including modest facility/laboratory for semen collection, evaluation and preservation.

(D) Capacity building:

1. Training of farm managers/large scale entrepreneurs on breeding management.
2. Regular/refresher training for technical personnel, para-vets and livestock service provider.
3. Training on semen collection and AI for farmers/service provider.

(E) Entrepreneurship development and Industrial development should be explored to promote Piggery and Piggery Products.

(F) Pig Farming Policy and Guidelines should be developed from time to time which will result on more expansion of organized Pig Farming. This can be implemented and executed through Gram Panchayat/Municipal Corporation.

(G) Adoption of model villages for implementation of scientific pig farming.

(H) Support system

1. Infrastructure:

The following infrastructure will be required to implement the breeding policy:

- Two nucleus herds, each consisting of two exotic breeds viz. LWY and Hampshire in two different locations
- In similar lines, nucleus herd of Indigenous pig of Manipur need to be established.
- Development of sheds for different age groups such as farrowing, grower, replacement and parent stock separately for each breed.
- Development of Office rooms for the staffs and others.
- Potable water plant and distribution system to individual pen
- Sewage treatment plant
- Boar sheds of each breed (a minimum of 20 nos.) with the facilities of boar training and semen collection amenities
- Semen processing laboratory with semen bank.
- Feed plant with a capacity of 10-15 quintals production per day and with a storage capacity of 500 quintals
- Provision for production of feed crops
- Setting up of the Modern slaughter house.
- Establishment of Meat processing plant.

2. Disease control and bio-security:

- Setting up of quarantine sheds at the point of entry in Manipur

- Regular vaccination against prevailing (FMD, CSF) and other emerging diseases
- Establishment of well equipped modern disease diagnostic laboratory.
- Standard operating protocol to be followed to prevent spread of diseases and infection
- Postmortem facilities and incinerator

3. Manpower:

Support in terms of human power will be required to manage the whole system as detailed below:

- Farm Manager with specialization in Animal Genetics and Breeding/Livestock Production and Management or minimum 5 years of experience in related activity
- Assistant Farm Manager with specialization in Animal Genetics and Breeding/Livestock Production and Management or a B.V.Sc & A.H. degree with training in related field
- Assistant Farm Manager (lab.) with specialization in Reproduction and Endocrinology or a B.V.Sc & A.H. degree with training in related field
- Laboratory Assistants (VFA) trained in related field from a recognized institute
- Livestock Supervisor
- Veterinary Field Assistant
- Lab attendant (Grade IV)
- Farm attendant (Grade IV)
- Other staff as per requirement

8. CONCLUSION :

The Manipur Pig Breeding Policy will aim at improving pig production system under changing agro-climatic scenario by improved scientific method of production. It will also target at improving socio-economically weak communities including women folk in terms of sustainable livelihood security. It is also expected to meet the current demand supply gap of pork in the state and opening new entrepreneurship and export of pork and pork products.

Since, the pig rearing system is dynamic and pig population structure is expected to change over a period of time, the current breeding policy should be reviewed after a minimum period of every five years.

MANIPUR

PIG BREEDING POLICY