BREEDING POLICY Of small ruminants

BY

DR. KHIZER HAYAT

DIRECTOR

SMALL RUMINANTS PUNJAB MULTAN

SHEEP BREEDING IN PUNJAB

- Sheep population in Punjab is 6.36 million with a positive trend in population growth.
- In 1996 sheep population was 6.14 millions which increased to 6.36 millions in 2006.
- Punjab has 24% of the national sheep population.
- Mutton production is 5.3 million tones while wool amounts to 9.5 thousand tones.
- Major sheep breeds are Lohi, Thalli, Kajli, Buchi and Sipli.
- Apart from these breeds Salt Range, Kachhi and Khadali are also found in the province.
- All these breeds produce coarse wool.

SHEEP BREEDING IN PUNJAB (cont..)

- One or more than one flock of Lohi, Thalli, Kajli, Buchi, Sipli and Kachhi are being maintained at Government Livestock Farms.
- Research & Development Centre Rakh Khairewala District Layyah is the major institutional facility for sheep and goat research.
- Directorate of Small Ruminants Punjab Multan provides veterinary extension services to over 2.0 million heads of Small Ruminants in four divisions (Multan, Bahawalpur, D.G Khan, Sargodha) and 42 tehsils of the Punjab Province.

OBJECTIVES OF THE PROPOSED BREEDING POLICY FOR SHEEP IN PUNJAB

- Improving mutton, Wool and other economic characteristics in existing sheep breeds through selective breeding in a multi-tier breeding structure of open nuclei.
- Training & education of farmers on practicing culling of uneconomical animals within a breeding stock.
- Encouraging pure breeding of animals within their respective home-tract to improve production quality for local and export markets.

ACTION PLAN FOR SHEEP BREEDING

Objective	Strategy	Program	Target/Timeframe	Action by
Improving Mutton and Wool Production	• Selective breeding	• Breed wise survey of existing sheep breeds	•100% survey of medium and large size flocks after approval of breeding policy in one year	DSR / DLOs
		•Study different parameters of various productive/reproductive traits of sheep breeds in the field	•Nucleus and multiplier flocks at institutional level & with the progressive breeders	DSR /DLF/ LPRI/ DLOs
		•Establishment of nucleus flocks in private sector	3-sheep flocks / 100-animals per V.A during first year and at least 3-flocks / 100-animals in next three years with a minimum of 6- flocks as per potential of respective breed in his area of jurisdiction. • Efforts will be focused on four breeds of sheep i.e Lohi, Thalli, Kajli and Mundri in the beginning, expanding to Sipli & Buchi in 2nd, Kachhi, Khadali & Salt Range in 3rd Phase.	DSR / DLOs

Objective	Strategy	Program	Target/Timeframe	Action by
Improving Mutton and Wool Production	• Selective breeding	•Establishment of open nucleus flocks of different breeds at Government Livestock Farms.	•Kajli at LES Khizrabad & Khushab. •Lohi at LES Allahdad, Jahangirabad and LPRI Bahadar Nagar. •Sipli at LES Haroonabad •Thalli at LES Rakh Ghulaman, (R&D) Rakh Khairewala, FWSF 205/TDA and GLF Kallurkot •Buchi at GLF, Jugaitpeaer.	DSR/ DLF/ RCCSC/ LPRI/ BRI
		•Development of a three tier breeding structure.	•Elite nucleus flocks •Multiplier flocks •Commercial flocks	DSR/ DLF/ RCCSC/LPRI/ BRI DSR/ DLOs Lahore Meat Company
		•Recording and evaluation.	•Breeding value estimation for body weight to identify superior rams for dissemination in multiplier flocks. •Recording of Birth weight, weaning weight, Adult weight (at the age of one year) •Wool quality to be added among breeding objectives after two years with the objective to improve the wool characteristics to meet the requirement of woolen industry with collaboration of Wool Research Lab. Bahawalpur	DSR /DFL/ DLOs

Objective	Strategy	Program	Target/Timeframe	Action by
Improving Mutton and Wool Production	• Selective breeding	•Introduction of artificial insemination service	•A.I. practice to be started in one breed of sheep in nucleous flocks at institutional level in the 1st stage after training of technical staff expanding to other breeds and in multiplier flocks in later stage. •Maintenance of proper record.	DSR/ LPRI/ DIR (B.I)
		•Encouraging culling and replacement of below standard stock of registered nucleus flocks.	•Continuous process •One breeding ram to be kept for service of 15 female animals in nucleous flocks. •Breeding Rams to be replaced after 2-years.	DLF/DSR/ RCCSC/LPRI/ BRI
		•Exchange of outstanding males among registered breeders as a cooperative structure.	•Best recorded and evaluated males to be exchanged	DLF/DSR/ DLOs
		•Educating farmers.	•Maintenance of proper record •Selection/ culling on the basis of economic traits & husbandry practices	DSR/DLOs
		•Conservation & genetic improvement of native pure breeds of sheep	•Comprehensive programme / project to be started for conservation & genetic improvement of native pure breeds of sheep, who are under threat. •Maintenance of Mundri and Khadali flocks at institutional level for conservation of breed, PC-I will be submitted	DSR

Objective	Strategy	Program	Target/Timeframe	Action by
Improving Mutton and Wool Production	•Recognition of breeders.	•Organization of competitions of outstanding Rams/Ewes annually.	•Cash awards and other packages of feeding like provision of balanced feed, Mineral Molasses blocks and health services for winning flocks/owners. •Free deworming and vaccination to all the multiplier flocks in private sector.	DSR/ DLOs
		•Development of Breeder / Farmer Associations.	•To be organized at divisional level by Assistant Director, Sheep/ Goat development for augmenting breed improvement efforts.	DSR/DLOs
		•Allocation of 25 % income generated by animal markets for small ruminants development activity	•Funds for improved extension services.	Govt. of the Punjab
		•Strengthening of (R&D) Rakh Khairewala leading to the creation of small ruminants research institute	•Long term plan	DSR /DLF/ DG(E)

DATA SHOWING DESIRABLE TRAITS OF DIFFERENT SHEEP BREEDS IN PUNJAB

Sr. No.	Name of Breeds	Ave. Birth Weight (Kg)		Ave. Weaning Weight (Kg)		Ave. Adult Weight (Kg)		Twining %	Ave. Fleece Weight (Kg)
		Male	Female	Male	Female	Male	Female		
1	LOHI	4.0	3.8	18.0	17.0	62.0	43.0	22.0	1.48
2	KAJLI	4.5	4.0	23.0	21.0	77.0	45.0	10.0	2.00
3	THALLI	4.0	3.5	20.0	18.0	62.0	38.0	11.0	2.00
4	SIPLI	3.5	2.8	16.0	14.8	50.0	35.0	8.5	3.54
5	BUCHI	3.0	2.8	14.0	13.5	42.6	30.0	2.0	1.80

Sr.No	INDUSTRIAL REQUIREMENT FOR CORPECT YARN			WOOL CHARACTERISTICS & FLEECE WEIGHT OF DIFFERENT SHEEP BREEDS OF THE PUNJAB					
				Khadali	Lohi	Sipli	Buchi	Thalli	Kajli
	Characteristics	Mean	SD %	Mean	Mean	Mean	Mean	Mean	Mean
1	Fiber diameter (in Microns)	33	13	33.1 (26.57-46.2)	34.77 (26.77-55.63)	40.91 (30.69-43.67)	36.12 (27.82-44.74)	44.57 (22.19-49.85)	36.48 (22.50-61.84)
2	Staple Lenth (cm)	5.5	1.5	7.4 (3.0-14.8)	5.8 (4.0-9.10)	8.6 (7.7-10.8)	6.8 (5.0-9.3)	4.5 (3.0 - 6.1)	5.9 (2.0 - 11.5)
3	Modulation (%)	Min. 20%		65.5% (52.0-82.7)	58.04% (12.90-84.70)	46.44% (35.73-56.30)	56.96% (41.15-67.84)	66.32% (47.24-83.13)	43.10% (12.65-88.35)
4	Bulk (g/cm3)	27g/cm3		26.0	26.8	27.0	27.5	-	24.0
5	Fleece Weight (kg/year)	-		6.52 (2.0-14.0)	2.96 (1.0-6.0)	7.08 (2.0-16.8)	3.60 (1.2-7.5)	4.0	4.0

GOAT BREEDING IN PUNJAB

- Goat population in Punjab is 19.83 millions which is highest (37%) amongst all the provinces. (Livestock census 2006).
- It was 10.76 and 15.30 millions in 1986 and 1996 census, respectively. (↑42.4% @ 3-4% annually)
- Main goat breeds are Beetal, Teddy, Nachi and Dera Din Panah (DDP).
- Beetal with bigger size and milk production potential to Nachi and D.D.P, fetches maximum price for sacrificial purpose and is also reared in other provinces for raising as purebred as well as for cross breeding.
- The primary purpose of goat raising is production of goat meat.
- Milk is also of importance in Beetal, Nachi and DDP.

OBJECTIVES OF THE PROPOSED BREEDING POLICY FOR GOAT IN PUNJAB

- Improving goat meat and other economic characteristics of existing goat breeds through selective breeding in a multi-tier breeding structure.
- Training & education of farmers on practicing culling of uneconomical animals.
- Encouraging pure breeding of animals within a home-tract to improve production quality for local and export markets.

ACTION PLAN FOR GOAT BREEDING

Objective	Strategy	Program	Target/Timeframe	Action by
Improving meat production	•Selective breeding	•Breed wise survey of existing goat breeds	•100% survey of medium and large size flocks after approval of breeding policy in one year	DSR/DLOs
		•Study different parameters of various productive / reproductive trails of goat breeds in the field.	•Nucleus and multiplier flocks at institutional level & with the progressive breeders.	DSR /DLF/ LPRI/ DLOs
		•Recording and evaluation.	•Breeding value estimation for body weight to identify superior Bucks for dissemination in multiplier flocks. •Recording of Birth weight, weaning weight, Adult weight (at the age of one year) • Fortnightly milk recording of nucleus flocks for identification of elite does	DSR /DFL/ DLOs
		•Establishment of nucleus flocks in private sector.	• 3-goat flocks / 100-animals per V.A during first year and at least 3-flocks / 100-animals in next three years with a minimum of 6- flocks as per potential of respective breed in his area of jurisdiction. • Efforts will be focused on four breeds of goat i.e Beetal, Nachi, Dera Din Pannah and Nuqri.	DSR/ DLOs

Objective	Strategy	Program	Target/Timeframe	Action by
Improving meat production	•Selective breeding	•Establishment of open nucleus flocks of different breeds at Government Livestock Farms.	•Beetal at (R&D) Rakh Khairewala, LES Fazilpur, Allahdad, Rakh Ghulaman and LPRI Bahadar Nagar. •Nachi at (R&D) Rakh Khairewala •DDP at (R&D) Rakh Khairewala • Teddy at LES Chak Katora, Rakh Ghulaman and (R&D) Rakh Khairewala • Nuqri in private sector at Mohammad Pur Dewan.	DLF/DSR/ RCCSC/LPRI/ BRI
		•Introduction of artificial insemination service	•A.I. practice to be started in one breed of goat in nucleous flocks at institutional level in the 1st stage after training of technical staff expanding to other breeds and in multiplier flocks in later stage. •Maintenance of proper record.	DSR/ LPRI/ DIR (B.I)
		•Exchange of outstanding males among registered breeders as a cooperative structure.	•Best recorded and evaluated males to be exchanged	DLF/DSR/ DLOs
		•Culling & replacement of below standard stock with outstanding animals in registered nucleous flocks	•Continuous process •One breeding buck to be kept for service of 15 female animals in nucleous flocks. •Breeding Bucks to be replaced after 2-years	DLF/DSR/ RCCSC/LPRI/ BRI
		•Keeping the nuclei of different breeds open	•Germplasm will be shared with the registered flocks in Private Sector.	DLF/DSR/ DLOs

Objective	Strategy	Program	Target/Timeframe	Action by
Improving meat production	•Selective breeding	•Conservation & genetic improvement of native pure breeds of goat	•Comprehensive programme / project to be started for conservation & genetic improvement of native pure breeds of goat. •Maintenance of Pure Nuqri & Barbari flocks at institutional level for conservation of breeds.	DSR
Improving meat production	•Recognition of breeders	•Organization of competitions of outstanding Bucks/ Does annually.	•Cash awards and other packages of feeding like provision of balanced feed, Mineral Molasses blocks and health services for wining flocks/owners. •Free deworming and vaccination to all the multiplier flocks in private sector.	DSR/DLOs
		•Development of Breeder / Farmer Association	•To be organized at divisional level by Assistant Director, Sheep/ Goat development for augmenting breed improvement efforts.	DSR/DLOs
		•Allocation of 25% income generated by animal market for small ruminants development activity	•Funds for improved extension service	Govt. of the Punjab
		•Strengthening of (R&D) Rakh Khairewala leading to the creation of Small Ruminants Research Institute.	•Long term plan	DSR /DLF/ DG(E)

DATA SHOWING DESIRABLE TRAITS OF DIFFERENT GOAT BREEDS IN PUNJAB`

Sr. No.	*Name of Breeds*	*Ave. Birth Weight (Kg)*		*Ave. Weaning Weight (Kg)*		*Ave. Adult Weight (Kg)*		*Twining %*	*Ave. Milk Yield (Lit. / Day)*	*Ave. Hair Yield (Kg / Year)*
		Male	*Female*	*Male*	*Female*	*Male*	*Female*			
1	*BEETAl*	*3.6*	*3.2*	*18.0*	*16.0*	*66.0*	*44.0*	*56.0*	*3.0*	*-*
2	*NACHI*	*3.5*	*3.0*	*20.0*	*17.5*	*67.0*	*46.0*	*27.0*	*3.0*	*0.8*
3	*D.D.P*	*4.0*	*3.5*	*20.0*	*18.0*	*69.0*	*50.0*	*31.0*	*3.0*	*1.2*
4	*TEDDY*	*1.5*	*1.3*	*10.0*	*8.8*	*42.0*	*27.0*	*46 10 to 15 % Triples*	*-*	*-*