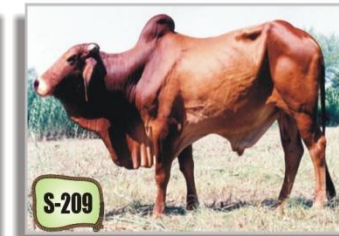
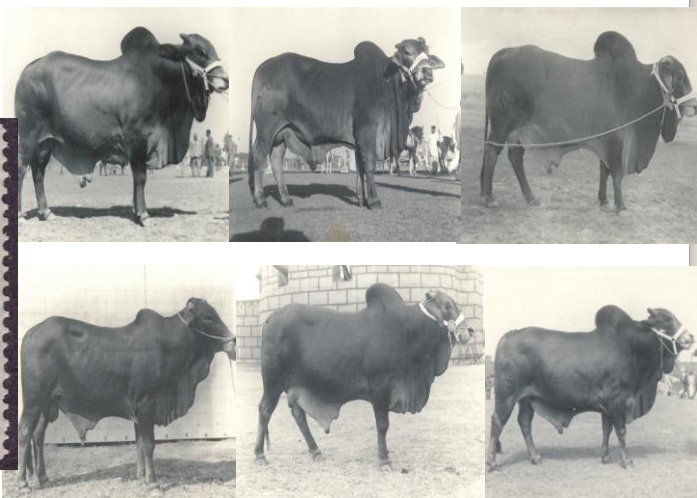
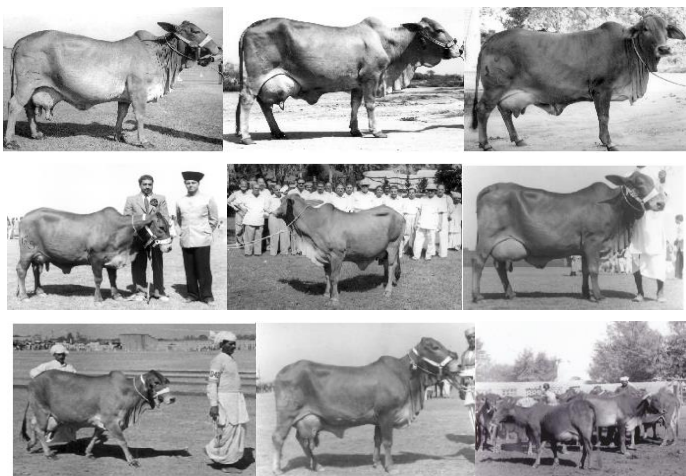


Sahiwal Cattle Breed Conservation in Pakistan



*Dr. Javed Iqbal Ph. D
Former
Director RCCSC Jhang*

LIVESTOCK SUB SECTOR

- Livestock contributed 55.9 % to agriculture sector and 11.8 % to GDP during 2013-14
- Livestock growth rate was 2.9 %
- Punjab has 52 % of the total livestock population
- Punjab constitutes 63 % of the total milk production
- Small dairy holders (having 1-6 animals or 1-3 dairy cows /buffaloes) dominate and possess 89 % of the cattle herds and 85 % of the buffalo herds
- Only 3-7 % livestock owners fall under large farms

Livestock Population and Milk Production in Pakistan

<i>Species</i>	<i>2013-14</i>	<i>Milk production</i>
Buffaloes	34.6 million	31.252 million tons
Cattle	39.7 million	18.027 million tons
Goats	66.6 million	0.822 million tons
Sheep	29.1 million	0.038 million tons
Camel	1.0 million	0.851 million tons
Total		50.990 million tons

Species wise share

Buffalo	61.3%
Cattle	35.4%
Others (sheep, goat, camel)	03.3%

Pakistan is the 3rd largest milk producer in the world on energy corrected milk basis) and also having lowest cost of milk production (IFCN Dairy report-2012)

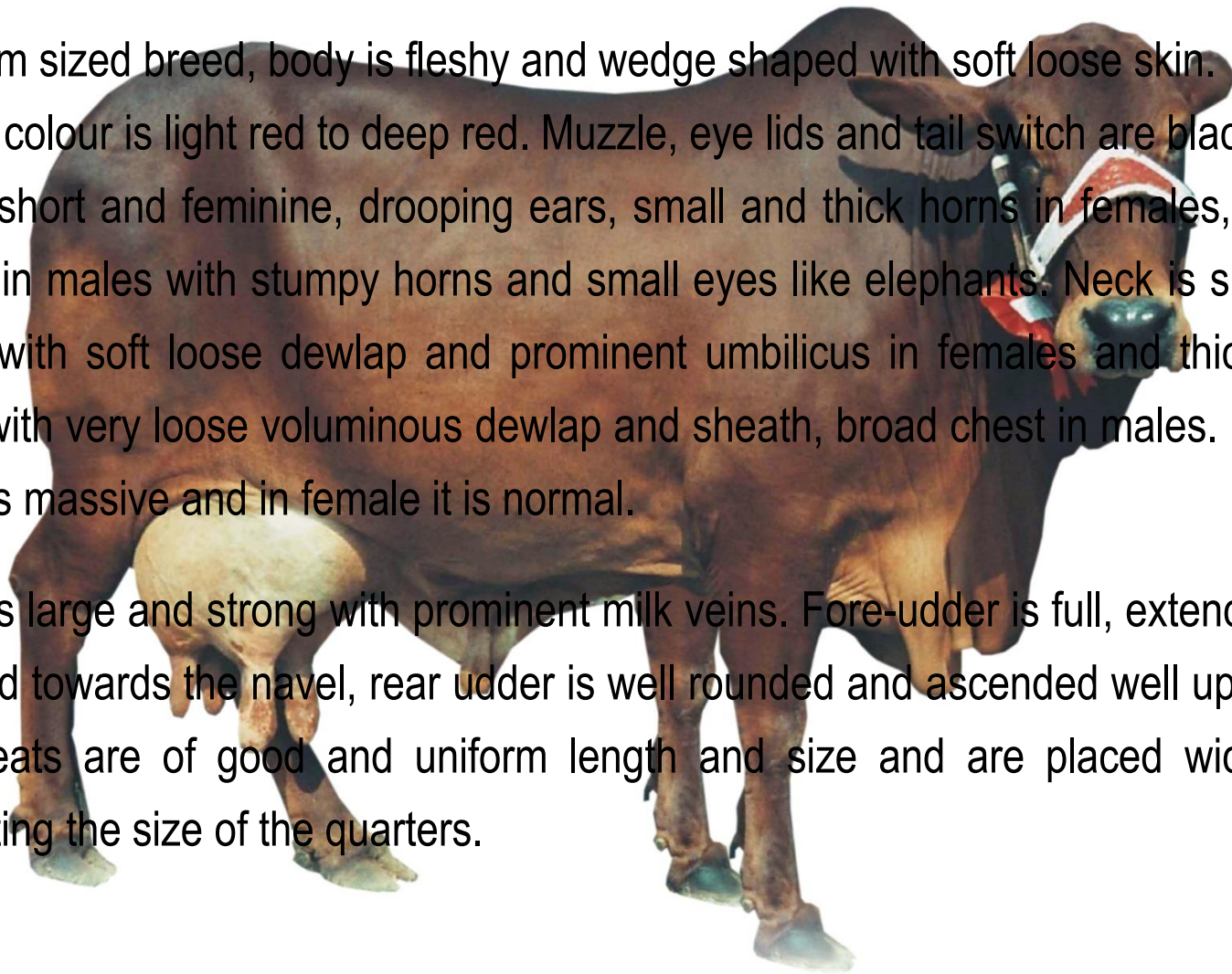
BREED

A breed is a group of animals of common descent, possessing distinctive characteristics that distinguish them from other groups within the same species.

The Sahiwal Breed

Medium sized breed, body is fleshy and wedge shaped with soft loose skin. Breed colour is light red to deep red. Muzzle, eye lids and tail switch are black. Head short and feminine, drooping ears, small and thick horns in females, head is broad in males with stumpy horns and small eyes like elephants. Neck is short and small with soft loose dewlap and prominent umbilicus in females and thick, short neck with very loose voluminous dewlap and sheath, broad chest in males. Hump in male is massive and in female it is normal.

Udders large and strong with prominent milk veins. Fore-udder is full, extending well forward towards the navel, rear udder is well rounded and ascended well up behind. The teats are of good and uniform length and size and are placed wide apart indicating the size of the quarters.



Sahiwal Breed Performance

Average birth weight females (kg)	20
Average birth weight males (kg)	22
Average age at first service (months)	27
Average weight at first service (kg)	225
Average age at first calving (months)	36
Service period (days)	156
Gestation Period (days)	285
Lactation Period (days)	291
Calving Interval (Days)	441
Fertility % (through AI)	80
Daily maximum milk yield (kg)	39
Maximum 305 days milk yield	7100
Average 305-days milk yield (kg)	2000
Fat (%)	4.6



Sahiwal Breed Status

- ❖ Global genetic resource, found in twenty nine countries ([Map](#))
- ❖ [High milk](#) producing ability amongst zebu cattle
- ❖ [Produces A2 type safer milk as Bos taurus \(HF\) produces A1 type milk](#)
- ❖ Resistant against tropical diseases, ticks and harsh climates
- ❖ [More than eight breeds evolved through Sahiwal \(Breeds\)](#)
- ❖ 2.061 Million, according to livestock census 2006 in the province.
- ❖ Depleted due to
 - a. Change in agriculture system
 - b. Indiscriminate crossbreeding and
 - c. Buffalo Preference

Milestones in Sahiwal Breed Conservation

7000-8000 years ago: Zebu cattle was domesticated in Indus valley –present day Pakistan

Pre-1900 Breed in different names was found in Ganji bar tract

1914 : Pioneers in Sahiwal, Sardar Jahangir Khan Wattoo

1917 : Allah Dad Cattle farm Jahanian, Multan

1920 : Datar Singh Farm was established near Montgomery

1925: Scheme on Sahiwal breeding started in Shergarh (Okara)

1938 : A Sahiwal cattle scheme (10 yrs) was launched

1949: A postage stamp on sahiwal was issued on Silver Jubli of Mamlikat-e-Khuda Dad Bwp

1955 : Shah Jewena Cattle Farm Jhang started Sahiwal breeding

1962 : Sahiwal cattle breeding was started at Bahadurnagar

1973 : Sahiwal cattle were shifted at Fazilpur, Rajanpur

1979 : LES, Kalurkot, Bhakar started Sahiwal cattle breeding

1980 : LES, Khizarabad, Sargodha was established

1986: LES Shergarh was established after transfer from PLDB.

1998 : FAO sponsored study on Sahiwal cattle was completed

2004 : Research Centre for Conservation of Sahiwal Cattle was established at Jhang

2014: Issuance of commemorative postal stamp on completion of 100 years (1914-2014) of Sahiwal cattle breed conservation.

RCCSC



Objectives

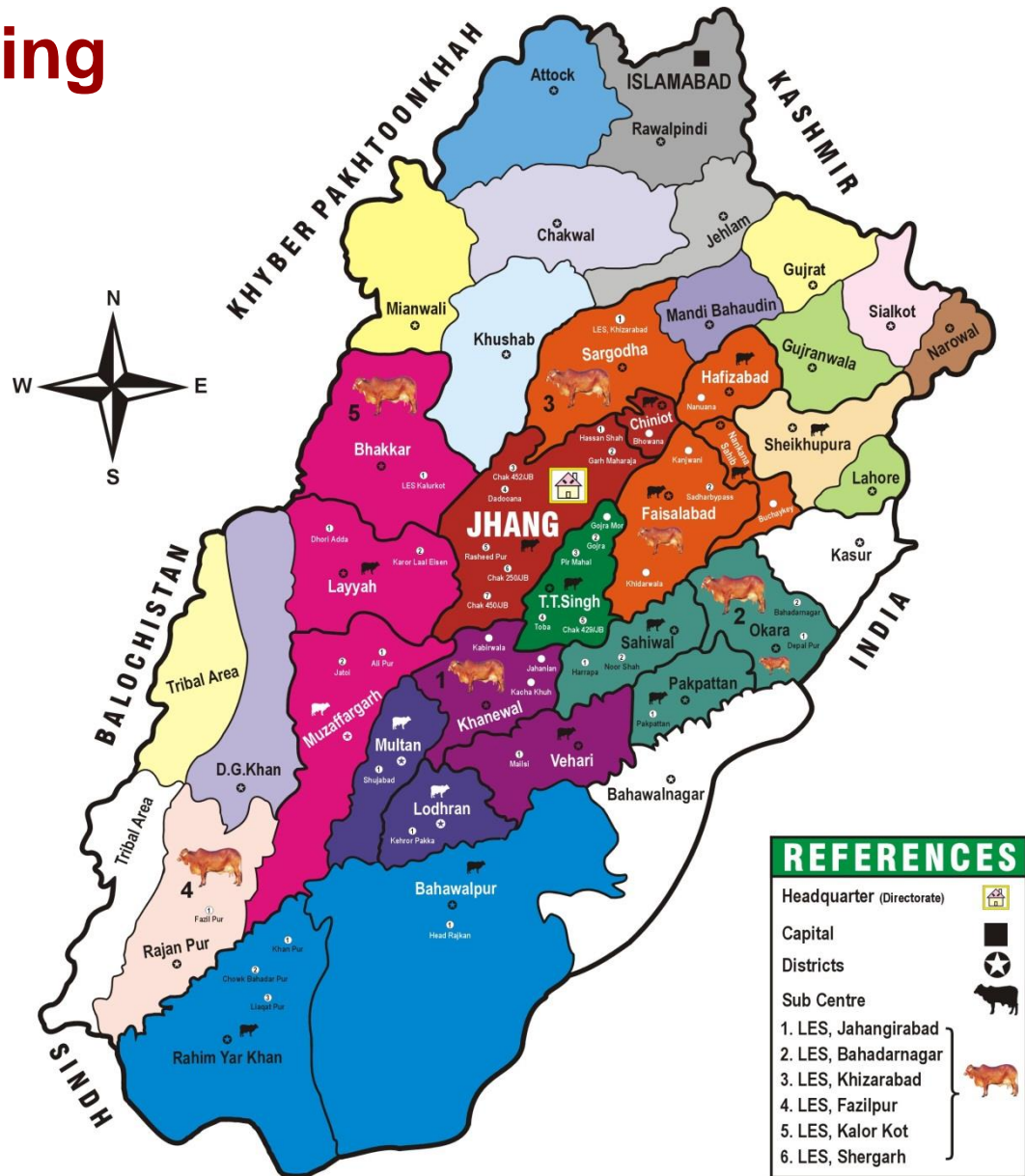
- ❑ Maintenance of nucleus herd of superior germ plasm of Sahiwal cattle.
- ❑ Registration and documentation of institutional and private Sahiwal cattle farms/herds.
- ❑ Performance recording for genetic evaluation and herd management.
- ❑ Identification of superior germ plasm.
- ❑ Publishing and dissemination of sire/cow summaries.
- ❑ Conducting research on conservation and genetics.
- ❑ Collaboration with national and international institutions involved in breed development programmes.

Incentives to Registered Breeders

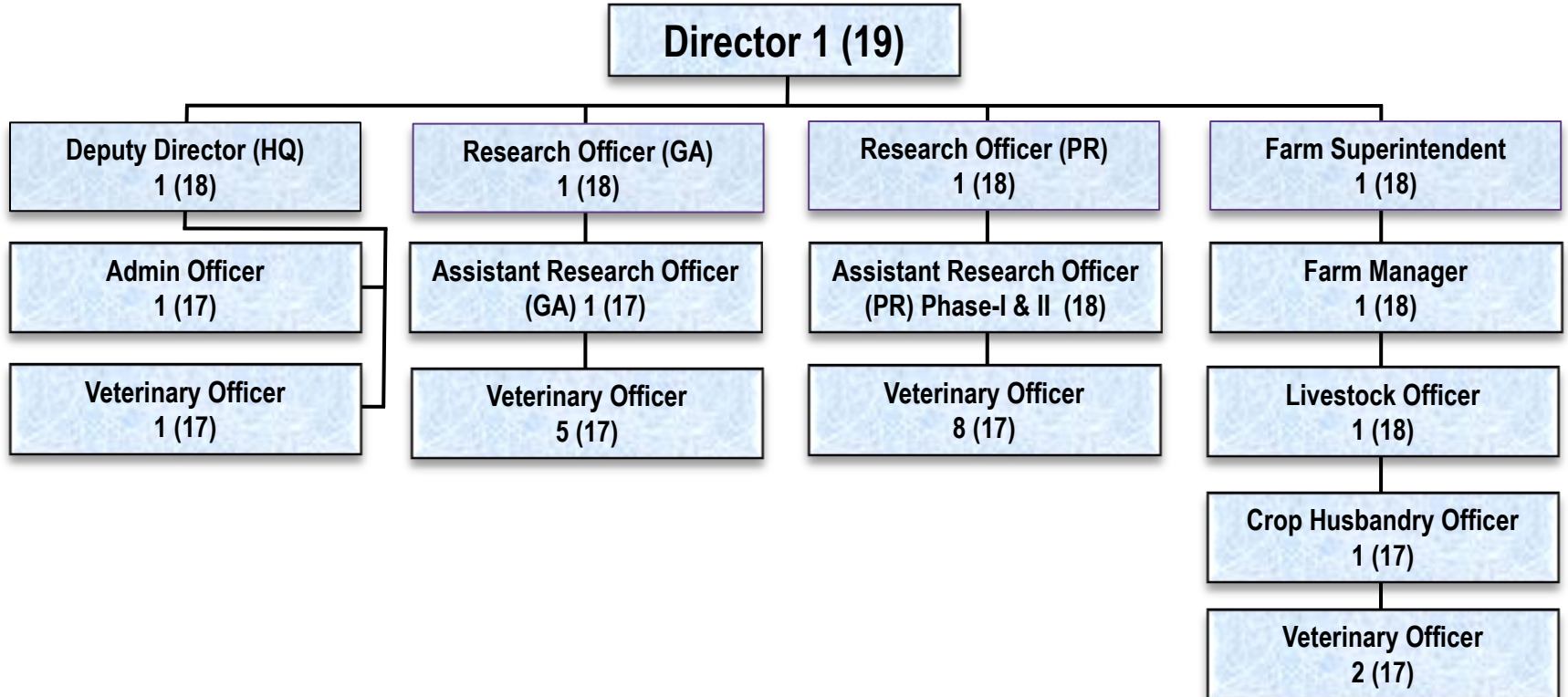
- A) Free of cost:-
 - Artificial Insemination
 - Vaccination
 - De-worming of calves
- B) Provision of Sahiwal bulls to herders where AI is not possible
- C) Purchase of calves out of elite cows at premium price (Rs. 0.055 to 0.95m)
- D) Prizes to winners of milk and breed competition (Melas)
- E) Special stipend of Rs. 0.60 Mill. for Sahiwal cows yielding ≥ 18 kg/day MY.

Location and working area of RCCSC

1. Jhang	= 7
● Chiniot	= 1
2. T. T. Singh	= 5(1)
3. Faisalabad	= 3
● Hafizabad	= 1
● Sargodha	= 1
● Nankana sb	= 1
4. Okara	= 2
● Sahiwal	= 2
● Pakpattan	= 1
5. Khanewal	= 3
● Vehari	= 1
6. Multan	= 1
● Lodhran	= 1
7. Rahim Yar Khan	= 3
● Bahawalpur	= 1
8. Muzaffargarh	= 2
● Layyah	= 2
● Bhakkar	= 1(1)
Total	= 39



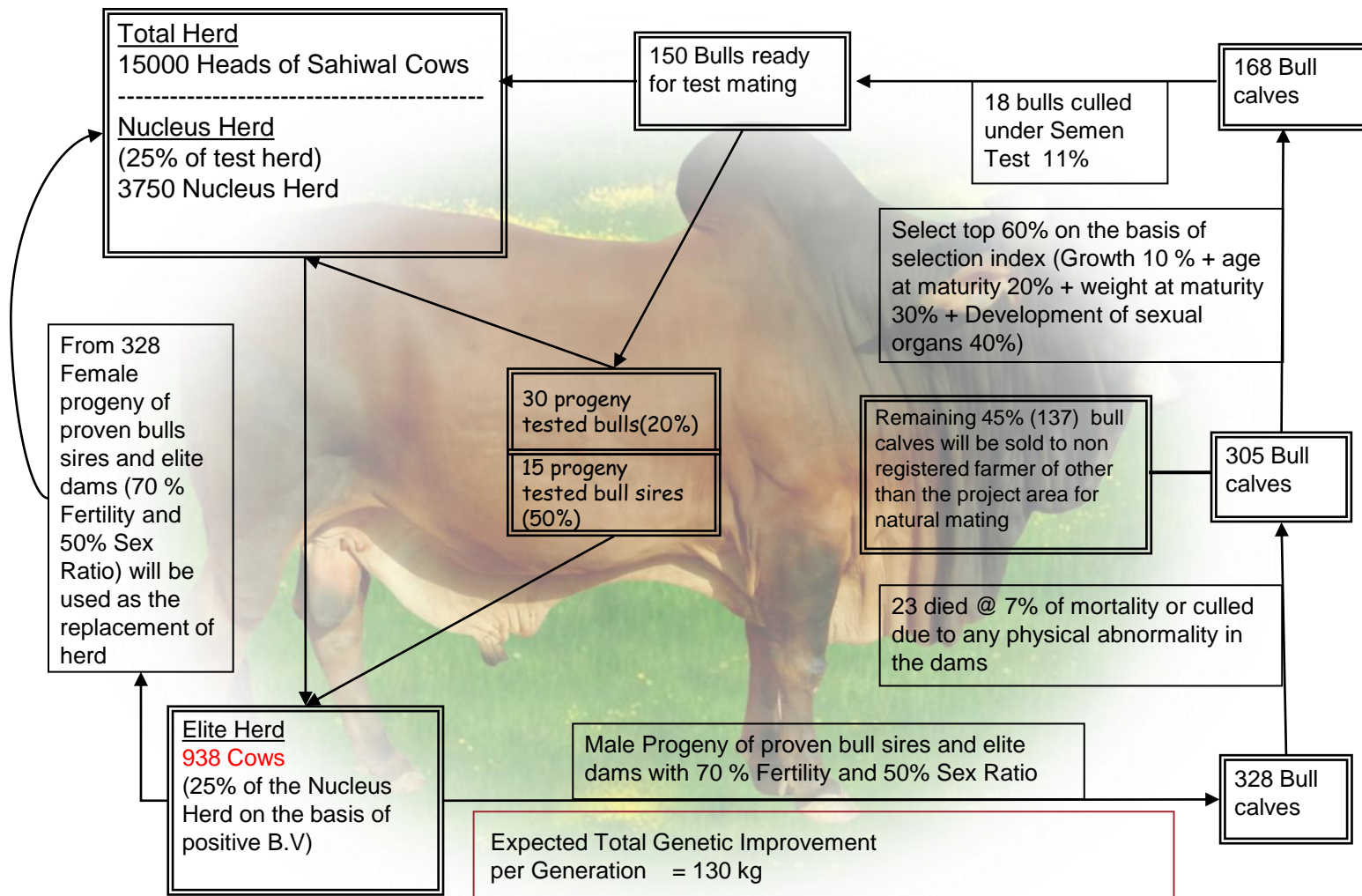
Human Resource



Financial Resource (Mill.)

YEAR	ALLOCATION	RELEASE	EXPENDITURE	%age
RCCSC, Dev. Phase-I (5 years) (2003-04 to 2007-08)	87.815	102.592	89.277	87.02
RCCSC, Dev. Phase-II (3 years) (2008-09 to 20010-11)	91.950	75.107	74.672	99.42
SNE, Phase-I (2008-09)	12.900	12.461	12.127	97.32
SNE, Phase-I (2009-10)	14.099	12.939	12.811	99.00
SNE, Phase-I (2010-11)	17.307	15.459	15.404	99.64
SNE, Phase-I &II (2011-12)	36.972	34.910	35.131	101.15
SNE, Phase-I &II (2012-13)	42.060	39.542	38.916	100%
SNE, Phase-I &II (2013-14)	47.852	43.609	43.491	99.00
SNE, Phase-I &II (2014-15)	48.699	36.724	8.0518	21.92

RCCSC Breeding Plan



Nucleus and Testing herds

7 Government Farms

(2500 cows)

- Jahangirabad, Khanewal
- Bahadurnagar, Okara
- Khizarabad, Sargodha
- Kaloor Kot, Bhakar
- Fazalpur, Rajanpur
- Shergarh, Okara
- University of Agriculture Faisalabad

33 Private Farms = herds

(1250 cows)

- Jhang 6
- Khanewal 6
- Toba Tek Singh 3
- Sahiwal 4
- Okara 1
- Faisalabad 2
- Hafizabad 2
- Layyah 1
- Rahim-Yar Khan 5
- Pakpattan 1
- Sheikhupura & Nankana 2

- Testing herd: 15000-3750= 11250

Identification of Superior Germ Plasm

Total Purchased at CRC Jahangirabad (up to 30.6.2014)	<u>983</u>
Distributed on agreement basis	47
Issued/sold to Breeders	492
Sent to SPU Qadirabad	311
➤ At SPU QA: 99	Under PTP: 182
➤ Under PTP: 65	Under non PTP: 98
➤ Waiting PTP: 8 8
➤ Waiting for semen: 26 26
Balance in stock on 30.6.2014	69

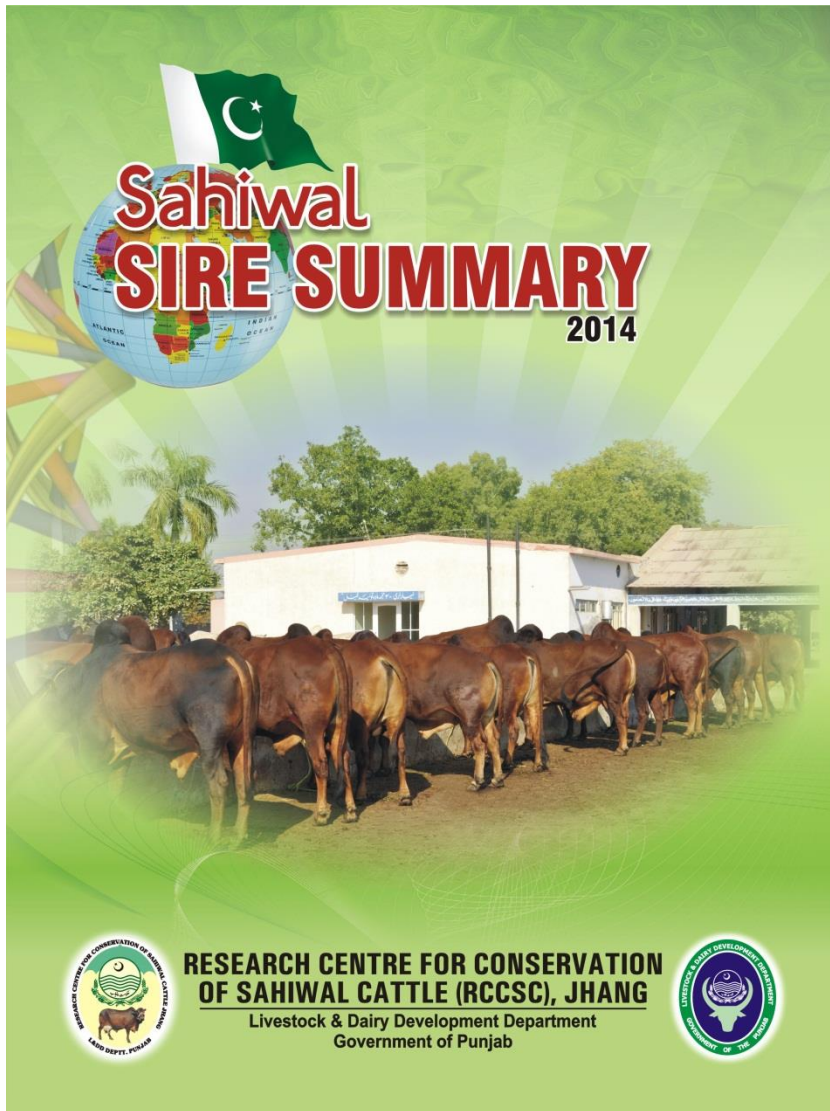
[Detail of Purchased Bulls](#)

[Purchased Committee](#)

Sahiwal Bulls Batches under Progeny Testing



Bull Batch #	No. of Bulls
• <u>Pre RCCSC Bull batch 1-14, (1981-82 to 2003-04)</u>	<u>159</u>
• <u>Sahiwal Bulls Batch-15 (2004-2006)</u>	10
• <u>Sahiwal Bulls Batch-16 (2006-2007)</u>	7
• <u>Sahiwal Bulls Batch-17 (2007-2008)</u>	15
• <u>Sahiwal Bulls Batch-18 (2007-2008)</u>	17
• <u>Sahiwal Bulls Batch-19 (2007-2008)</u>	8
• <u>Sahiwal Bulls Batch-20 (2008-2009)</u>	11
• <u>Sahiwal Bulls Batch-21 (2009-2010)</u>	7
• <u>Sahiwal Bulls Batch-22 (2010-2011)</u>	09
• <u>Sahiwal Bulls Batch-23 (2010-2011)</u>	10
• <u>Sahiwal Bulls Batch-24 (2010-2011)</u>	10
• <u>Sahiwal Bulls Batch-25 (2011-2012)</u>	9
• <u>Sahiwal Bulls Batch-26 (2011-2012)</u>	12
• <u>Sahiwal Bulls Batch-27 (2012-2013)</u>	16
• <u>Sahiwal Bulls Batch-28 (2012-2013)</u>	11
• <u>Sahiwal Bulls Batch-29 (2013-2014)</u>	11
• <u>Sahiwal Bulls Batch-30 (2013-2014)</u>	7
• <u>Sahiwal Bulls Batch-31 (2013-2014)</u>	<u>12 (182)</u>
Grand Total	241

Sahiwal Sire Summary 2014



**Sahiwal
SIRE SUMMARY
2014**

**RESEARCH CENTRE FOR CONSERVATION
OF SAHIWAL CATTLE (RCCSC), JHANG**
Livestock & Dairy Development Department
Government of Punjab



Code: S-186
EBV: 149.4



Code: S-142
EBV: 155.1



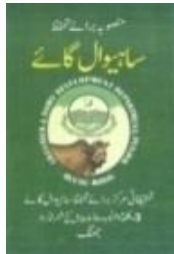
Code: S-158
EBV: 141.8



Code: S-110
EBV: 57.9



RCCSC Publications



Pamphlet on Project Introduction (Urdu)



Folder on Project Introduction (English)



RCCSC Incentives (مراعاتی پیکج)



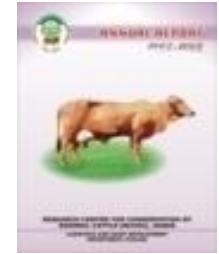
Annual Report (2003-04 to 2004-05)



Annual Report (2005-06)



Annual Report (2006-07)



Annual Report (2007-08)



Project Performance Report (2003-04 to 2007-08)



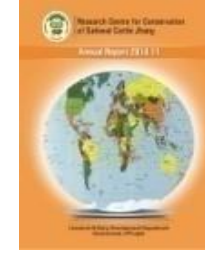
Annual Report (2008-09)



Book on Melajat (Urdu)



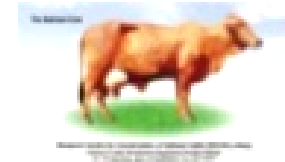
Annual Report (2009-10)



Annual Report (2010-11)



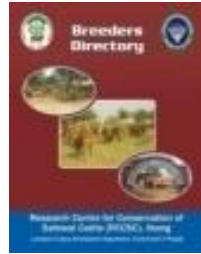
Sahiwal Cattle Pamphlet



Sahiwal Breed Sticker



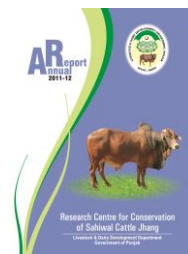
Sahiwal Gai poster



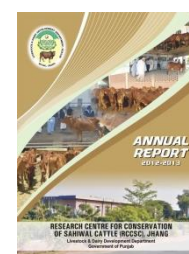
RCCSC Breeders Directory



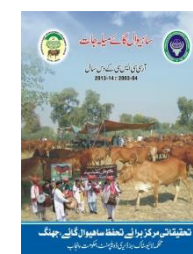
RCCSC, Proven Bulls Poster



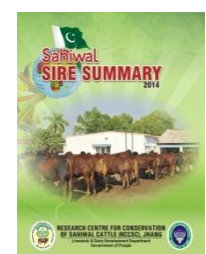
Annual Report (2011-12)



Annual Report (2013-14)



Sahiwal Gai Melajat (3rd Edition)



Sahiwal Sire Summary 2014

Research Studies

Sr. No.	Title of study	Published in
1	50 Embryo Transfer Technology Trials (on going) (Trials Summary)	RCCSC Annual Reports
2	Genetic Evaluation of Sahiwal herds in Punjab (on going)	RCCSC Annual Reports
3	Sahiwal Bulls evaluation by utilizing BLUP- Animal Model technique in Punjab (on going)	RCCSC Annual Reports
4	Biometrical studies on Sahiwal Bull Calves (on going)	RCCSC Annual Reports
5	Sahiwalization of Non Descript Cattle (on going)	RCCSC Annual Reports
6	A study on udder index in Sahiwal Cows (2007-08)	RCCSC Annual Reports
7	Effect of breeding index on performance of Sahiwal Heifers (2007-08)	RCCSC Annual Reports
8	Genetic studies on performance of elite Sahiwal Cows (2004-05 to 2009-10)	RCCSC Annual Reports
9	Improving Reproductive Efficiency of Sahiwal and Cholistani cows through Estrus synchronization and timed artificial Insemination	Annual Report 2013-14 (Tech.) UVAS Lahore

Research Studies (continued)

Sr. No.	Title of study	Published in
10	Comparative performance of Sahiwal Cows at the LES Bahadarnagar vs Patadar's herd	Pakistan Vet. J.,2006, 26(4) 79-183
11	Genetic Control of Test day milk yield in Sahiwal Cattle	Pakistan Vet. J.,2008, 28(1) 21-24
12	Factor affecting first lactation performance in Sahiwal cattle of Pakistan .	Arch. Tierz., Dummerstorf 51:4 2008.
13	Status of Inbreeding in Sahiwal cattle of Pakistan.	Pakistan J. of Science 64:4 2012. UVAS.
14	Identification of Novel Protein Gene Variants in Sahiwal Cattle Breed of Pakistan. Centre of Excellence in Molecular Biology University of the Punjab Lahore.	International Journal of Animal and Veterinary Advances 5(1): 38-43, 2013
15	Breeders Supported Sahiwal Cattle conservation and development.	WCAP 2013-4.1-01-033, Beijing China. (Abst)
16	Defining the breeding objective for Sahiwal cattle in Pakistan .	Ph.D. study 2014 (Australia)

Research Studies (continued)

Sr. No.	Title of study	Ph. D. / M.Phil
1	Inter herd performance and genetic evaluation of Sahiwal Cattle in Pakistan. (Dr. Zia ul Rehman)	Ph. D., (2006)
2	Characterization of linear type traits in Sahiwal cattle. (Dr. Mussarat Abbas Khan)	Ph. D., (2009)
3	Feeding Management for optimum growth, reproduction and first lactation performance in Sahiwal Heifers. (Dr. Muhammad Fiaz)	Ph. D., (2010)
4	Comparison of synchronization protocols for Estrus response and and conception rate in Sahiwal cows (Mubashar Hassan)	M. Phil., (2013)

Birth of ET Calves

Sr. #	Tag. No	Date of Birth	Class	Donor	BLY/Days	Sire	Recipient
1	51/06	05.04.2006	FS	89/93	3759/349	S-115	64/00
2	78/06	13.07.2006	FS	44/2.1**	2905/331	S-110	117/94
3	85/06	25.08.2006	FS	89/93	3759/349	S-110	84/00
4	112/06	02.09.2006	MS	89/93	3759/349	S-110	28/01
5	69/08	04.07.2008	FS	102/3.9 ***	3916/305	S-115	90/04
6	10/10	18.01.2010	FS	70/99	3131/306	S-186	8/04
7	16/10	29.01.2010	FS	70/99	3131/306	S-186	123/06
8	69/10	30.05.2010	FS	28/97	3206/340	S-266	10/07
9	5/11	23.01.2011	FS	77/01	2298/305	S-278	71/07
10	10/11	03.02.2011	MS	83/03	2772/335	S-266	81/07
11	42/11	21.04.11	FS	83/03	2772/335	S-266	25/01
12	77/11	19.07.11	MS	83/03	2772/335	S-266	70/01
13	122/11	24/12/11	MS	28/97	3206/340	S-266	56/06
14	7/12	11.1.2012	FS	144/95	2115/297	S-266	106/06
15	31/12	3-3-2012	MS	27/01	3599/296	S-307	68/02
16	20/12	18-3-2012	FS	10/99	2745/299	S-307	66/06
17	108/12	06-09-2012	MS	18/99	1800/240	S-307	62/02
18	10/13	24-01-2013	MS	58/00	2520/274	S-307	47/02
19	76/16	03-07-2013	MS	15/03	2289/288	S-110	43/03
20	86/13	03-08-2013	MS	114/99	3080/305	S-307	03/03
21	--	06-08-2013	FS	34/04	1880/221, 1059 kg EBV	S-328	60/98

1st ETT RCCSC Sahiwal Bull of Pakistan



Secretary L&DD Punjab with ETT Bull
on 19-03-2009

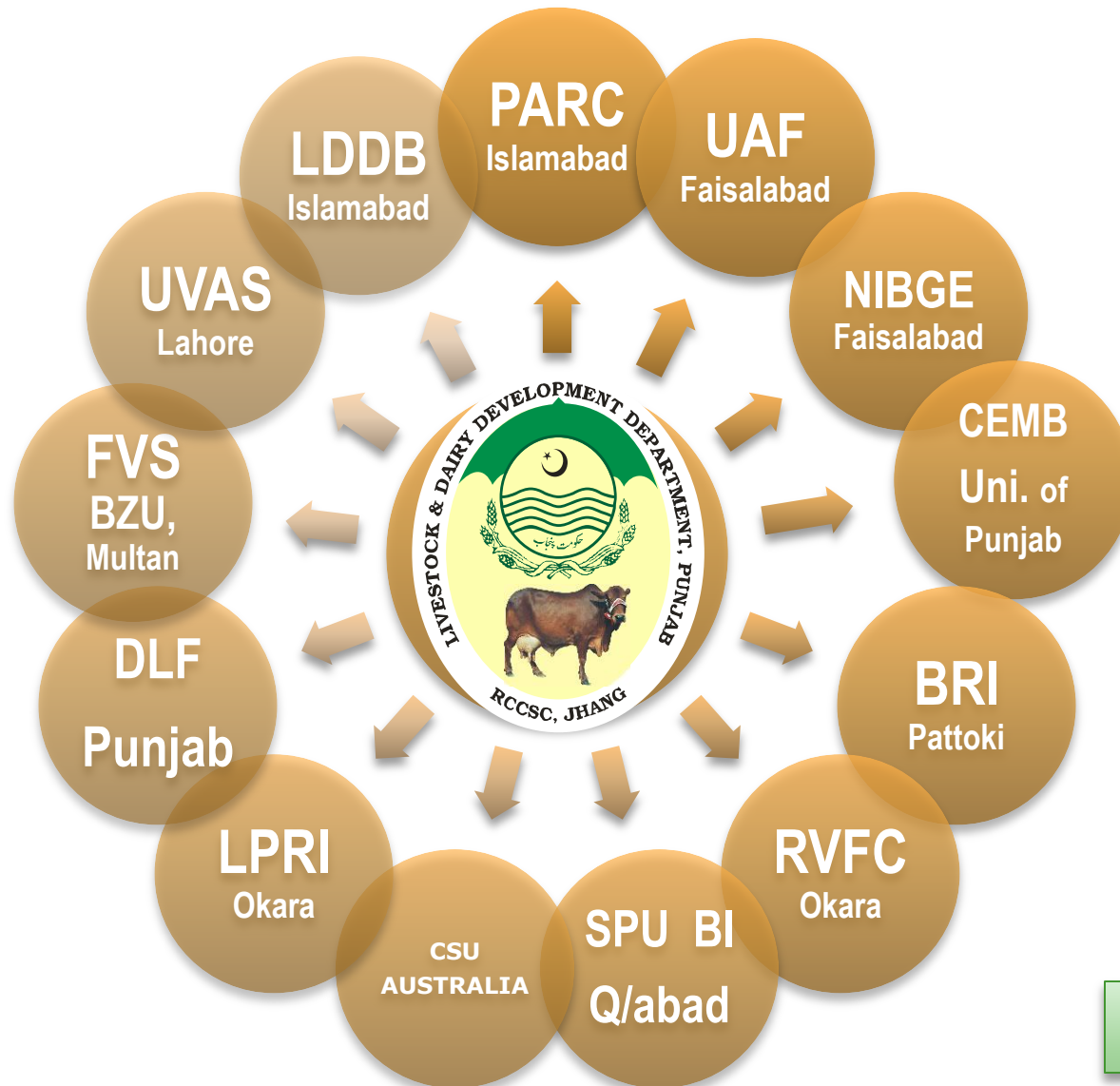


Secretary L&DD Punjab with ETT Bull
on 03-04-2012



World Wide Sires delegate with ETT Bull
on 07-02-2013

Collaborative Institutions



Activities

RED GOLD CLUB

Year	Silver Membership (18 to 21.99 kg, 24 Hours)	Golden Membership (22 to 25.99 kg, 24 Hours)	Platinum Membership (Up to 26 kg, 24 Hours)	Total Cows	Total Amount Distributed (Rs.)
2009-10	5	12	4	21	400000
2010-11	16	5	1	22	475000
2011-12	15	5	7	27	500000
2012-13	16	9	2	27	600000
2013-14	23	6	2	31	640000
Total	75	37	16	128	2615000

Distribution of Sahiwal Bulls on Agreement basis

Year	No. of Bulls Distributed
2009-10	10
2010-11	10
2011-12	7
2012-13	<u>10</u>
2013-14	10
Total	47
Returned back	24
In the field	23

Quantitative Targets and Achievements

Activities	Yearly Targets	Achievements 2013-14
Registration of Sahiwal cows	15000	19365
Performance recording of private Sahiwal cows (No. of milk recordings)	54000	59622
Identification of nucleus Sahiwal herds (no. of herds)	23	33
Evaluation of Sahiwal herds	30	42
Research trials	4	4
Publications	4	3
Sahiwal cattle shows	2	2
Vaccination against HS and FMD (Sahiwal and others)	108000	142029
De-worming of calves	16900	23897
A. I. to registered cows	9500	9982
Purchase of Sahiwal bull calves	75	69
Stipend to Red Gold Cows	20	31
Distribution of Sahiwal bulls	10	10
Collaboration with other institutions	17	17

Innovations at RCCSC

- **Trials on Embryo Transfer Technology (ETT)**
- **Collaboration in genomic studies**
- **Implementation of Freezed Branding**
- **Introduction of E-Tagging (RFID)**
- **Implementation of E- Weighing**
- **Establishment of Red Gold Club**
- **Distribution of Sahiwal bulls on agreement basis.**

Lessons learned

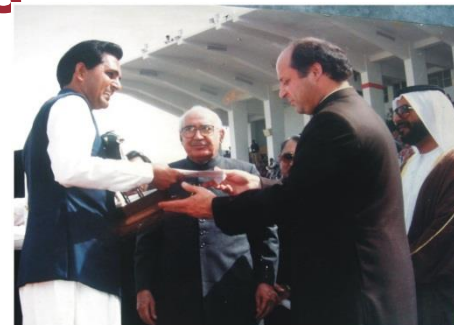
- **Shortage of 25 % field force and 50 % officers**
- **Interrupted budgetary releases**
- **Planning, Extra work & monitoring helped a lot in the target achievement**
- **Achievements, Appreciations, recognitions and awards were a reward.**
- **Continuity, stability and availability of team leader**



Recognitions and Awards

Government of Pakistan (1992)

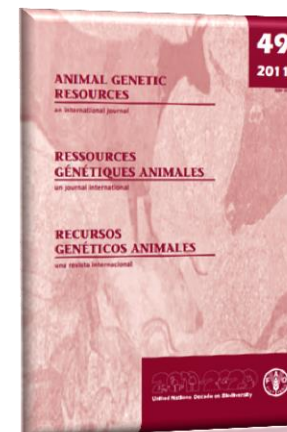
Manager LES, Bahadurnagar receives National Sahiwal Dairy Champion Trophy on February 29, 1992 from Prime Minister of Pakistan.



FAO (2011)

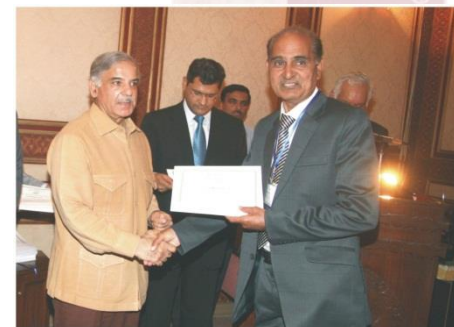
*“The **RCCSC** could be regarded as a model conservation programme for Sahiwal breed in the tropics where both human and financial capital has been concentrated to enhance breed conservation and utilization”.*

ELATSIA, E. D., R. Roessler, A. K. Kahi and A. Valle Zarate. 2011 Breeding and Conservation Programmes for Sahiwal Cattle genetic resources in the tropics: A review. *Animal Genetic Resources: An International Journal* 2011, 49, 65-74. FAO Rome Italy.



Government of the Punjab (2013)

*has recognized the outstanding performance of the team leader of **RCCSC** and has awarded commendation certificate and cash award of Rs. 50000/- on March 15, 2013.*





Recognitions and Awards

Breed Saviour Award 2013 Karnal India to RCCSC Registered Sahiwal Breeder

Breed Saviour Award 2013 was received by Sardar Muhammad Aftab Ahmad Khan Wattoo, registered breeder of RCCSC and President Sahiwal Cattle Breeders Society (SCBS) Punjab Pakistan on recognition of outstanding contribution of his and his family on conservation of Sahiwal breed since 1914.





Recognitions and Awards

Sardar Parkash Singh Badal Chief Minister, Punjab Awarded Sahiwal Breed Trophy on 8.7.2014 in Chandi Garh India

Sardar Parkash singh Badal CM Punjab India awarded Sahiwal Trophy to Dr Javed Iqbal Director RCCSC on recognition his services for the cause of conservation of this breed in Punjab Pakistan in Chandi Garh on 8.7.2014.





Recognitions and Awards

Commemorative Postage stamp 2014

*Islamic Republic of
Pakistan issued
Commemorative
Postage stamp
on completion of 100
years (1914-2014) of
Sahiwal Cattle Breed
Conservation
On August 5, 2014.*



Future Programmes/Projects (Insha Allah)

- ❖ Fodder seed production and fodder Conservation**
- ❖ Up scaling of RCCSC-genetic improvement programme**
- ❖ Punjab Livestock Genetic Improvement Centre (PLGIC)**



THANK YOU

