



**GOVERNMENT OF ODISHA
FISHERIES & ANIMAL RESOURCES DEVELOPMENT
DEPARTMENT**



**ANIMAL DISEASE PREVENTION
[Odisha Biological Products Institute (OBPI)]**

BACKGROUND :

“Odisha Biological Products Institute (OBPI)” is a premier institute of Government of Odisha under the Animal Resource Development Department. OBPI formerly known as Orissa Serum Institute, was established at Cuttack in the year 1946 and happens to be one of the oldest of its kind in the country. Later it was shifted to Bhubaneswar in 1961 keeping in view of its future expansion programme for production of vaccines against different dreaded infectious diseases of livestock & poultry.

OBPI – BHUBANESWAR :

The campus of OBPI is situated in close vicinity of Odisha University of Agriculture & Technology (OUAT) and spreads over an area of 7.84 acres comprising of Administrative block, Laboratory block, Experimental animals block & Vaccine Standardization Division-cum-Epidemiological Cell.

One new building has been constructed to facilitate Good Manufacturing Practice (GMP) for the bacterial vaccines.

The Institute is situated at a distance of 5.0 kms. from Bhubaneswar Railway Station and 3.5 kms. from Bhubaneswar Airport by road where as the State Secretariat is located at a distance of about 3.0 kilometres.

OBPI – BERHAMPUR :

OBPI-Berhampur a Satellite Unit of OBPI, Bhubaneswar and is located at Berhampur City in Ganjam District. This Satellite Unit was established at Berhampur on dated 15.06.1992 to cater the vaccine requirement of 10 Southern districts of Odisha including KBK districts. At first, it started production of Black Quarter and Haemorrhagic Septicaemia vaccines during May 1997 after receiving a license from the Drug Controller, Odisha vide License No.572, Dt.09.05.1996.

Currently, OBPI-Berhampur produces Anthrax Spore Vaccine (Living) and Enterotoxaemia vaccine for the entire state of Odisha. The biological produced here are standardized at OBPI, Bhubaneswar.

OBJECTIVES :

To produce and supply Veterinary Biological (Vaccines) against commonly occurring infectious and economically important diseases of livestock & poultry of the state.

MANDATE :

The mandate of Odisha Biological Products Institute (OBPI) is to ensure production and regular supply of quality vaccines to field institutes for taking up preventive measures in livestock and poultry.

SILENT FEATURES :

- The Institute plays a vital role in maintaining Good Management Practice (GMP) and Good Laboratory Practice (GLP) for producing standard vaccines for mass vaccination against economically important diseases of livestock & poultry (e.g. Hemorrhagic Septicemia, Black Quarter, Anthrax, Enterotoxaemia etc. in livestock and Ranikhet Disease, Fowl Pox etc. in poultry).
- The Fermentation technology has been adopted for the first time to produce high quality HS vaccine production through specific bacterial biomass production using stringent parameters of P^H, Temperature, O₂ tension in a fermenter. The vaccine production is of high quality in terms of biological and immunological value.
- The first batch of vaccine with fermenter technology was successfully produced during March, 2009. Automatic Bottling Unit has been installed.
- The institute became eligible for **ISO: 9001-2000** certification on 20.12.2006 for its quality management system through year 2007, 2008 & 2009.
- A record production of 170.14 lakh doses of different vaccines was achieved during 2008-09 which is all time high since its inception.
- Every year, the Institute imparts training to the interns of College of Veterinary Science & AH on the methodology of vaccine production and its quality control.
- Every year, the Institute follows prescribed protocols that are approved by the committees like Institutional Animal Ethics Committee (IAEC) and CPCSEA for Standardization and quality control for production of different Vaccines using different lab. Animals.

TYPES OF VACCINE PRODUCED :

The vaccines produced by OBPI against the commonly encountered diseases of livestock & poultry in Odisha are as follows:-

A. Bacterial Vaccines:

- i) Hemorrhagic Septicemia (Fermentor) Vaccine.
 - ii) Hemorrhagic Septicemia (Alum ppt.) Vaccine.
 - iii) Black Quarter Vaccine.
 - iv) Enterotoxaemia Vaccine.
 - v) Anthrax Spore Vaccine (Living)
- } Produced at OBPI, Satellite Unit Berhampur

B. Viral Vaccines (for Poultry):

- i) Freeze Dried Ranikhet Disease Vaccine (F₁ Strain)
- ii) Freeze Dried Ranikhet Disease Vaccine (R₂B Strain)
- iii) Freeze Dried Fowl pox Disease Vaccine

PLANNING PROCESS :

Taking into consideration the livestock population of different districts a target is fixed for each vaccine by the Directorate. Individual districts are also giving their indents of different vaccines as and when required. Keeping the target in mind the distribution of vaccines is being done rationally.

The procurement of vaccines and distribution of the same are being approved by the Disease control section of Directorate.

Optimal Production Capacity: By manual method the optimum production capacity of vaccines (both HS and BQ) is around 2.16 crore doses. But through GMP, it would be around 4 crore doses.

SANCTIONED STRENGTH OF OBPI, BHUBANESWAR

There are different categories of technical & non-technical staff engaged as detail below for vaccine production, quality control and other related activities.

Sl.No.	Name of the Post	Sanction Strength
01	Joint Director Level-I	01
02	Joint Director Level-II	02
03	Research Officer (RO)	10
04	Senior Laboratory Assistant	12
05	Foreman	01
06	Electric Technician	01
07	Refrigerator Technician	01
08	Sr. Lab. Technician (S.G)	04
09	Junior Laboratory Assistant	07
10	Mechanic	01
11	Boiler Mechanic	01
12	Boiler Operator	01
13	Freeze Drying Operator	01
14	Sterilization Assistant	02
15	Laboratory Attendant	30

SANCTIONED STRENGTH OF OBPI, BERHAMPUR

Sl.No.	Name of the Post	Sanction Strength
01	Senior Laboratory Assistant	02
02	Senior Clerk	01

TECHNICAL EXPERTISE OF OBPI :

Odisha Biological Products Institute, Bhubaneswar under Govt. of Odisha is engaged in producing life saving bacterial and viral Vaccine of animals and poultry birds against different contagious and economically important diseases, thus plays a vital role in rural economy, poverty reduction and employment generation in rural areas.

The primary objective of the institute is to maintain vaccine strain of bacteria using synthetic media. Simultaneously the institute has its own in house quality control programme for standardization of this vaccine before releasing for field use. One of the parameter for quality control of the vaccine is safety and potency test. Again the institute has to produce quality seed strain by using animal system such as Rabbit, sheep and Albino mice.

The veterinary biological used to prevent various diseases in the state are usually subjected to stringent quality control tests before they are released for use in the field. Standardization laboratory of OBPI is involved in quality control testing of different veterinary vaccines produced at OBPI, BBSR and satellite unit OBPI, Berhampur. The quality control testing of vaccines includes testing of vaccines for sterility, safety and potency.

The **sterility testing** of biological is done to assure the absence of microbes other than stated in vaccine formulation. Sterility testing is being conducted in different media for presence of aerobic, anaerobic or fungal contamination and observed for a period of seven days.

For **safety testing** of different bacterial vaccines different laboratory animals like rabbits, guinea pigs, sheep and for viral vaccines poultry birds are used. After inoculation the laboratory animals or poultry birds are observed for a period of 7 -14 days for presence of any undesirable effects.

Potency testing of vaccines is carried out in different laboratory animals by challenging with the causative live micro organism. Fourteen days after inoculation of vaccine or booster dose in certain vaccine the respective laboratory animals are challenged with required dose of live organism and observed for survivability.

Standardization laboratory also involves in procurement of seed for different vaccines, maintenance and passage of seed strains. Passage of seed is being conducted in different laboratory animals like rabbit and guinea pigs for bacterial vaccines. Then cultural and biochemical tests are conducted for the isolated organism. Subsequently the seed is maintained in different synthetic media. Every effort is being given to provide best services to the stakeholder for quality control testing of biological following testing protocols as per Indian Pharmacopoeia 2014 and Drugs and Cosmetic Act 1940.

The biological produced in OBPI are evaluated for its quality control by Chaudhary Charan Singh National Institute of Animal Health, Baghpat, Uttar Pradesh.

STATUS OF VACCINE PRODUCTION AS ON 17.07.2020 BY OBPI :**A. Comparative Vaccine Production till Dt.17.07.2020: (All the figures are in doses)**

Sl. No.	Name of the Vaccine	2016-17	2017-18	2018-19	2019-20	2020-21 (Up to Dt.17.07.2020)
1	HSV(A)	7224000	7850000	7934600	8772700	2129050
2	B.Q.V.	5850000	5931000	6113000	6118600	1462300
3	ASV	2276600	2211900	2642900	2464600	903100
4	ENTV	1421000	989200	1037800	1731900	683000
5	FDRDV (R ₂ B)	3369800	2584000	3854600	5699600	2179200
6	FDRDV (F ₁)	227200	143500	820800	578800	468100
7	F.P.V.	---	---	---	244700	---
TOTAL		20368600	19709600	22403700	25610900	7824750

B. Comparative Vaccine Supply till Dt.17.07.2020: (All the figures are in doses)

Sl. No.	Name of the Vaccine	2016-17	2017-18	2018-19	2019-20	2020-21 (Up to Dt.17.07.2020)
1	HSV(A)	8126900	7589200	8392100	7672700	7672700
2	B.Q.V.	5949100	5618000	6579050	5215300	1287600
3	ASV	2808000	1673400	2014100	2264700	606700
4	ENTV	1360000	1056700	1144100	1407500	592900
5	FDRDV (R ₂ B)	2662400	3146600	4558600	4043800	1636000
6	FDRDV (F ₁)	327200	143500	820800	414800	50000
7	F.P.V.	---	---	---	244700	---
TOTAL		21233600	19227400	23508750	21263500	5842800

STATUS OF VACCINE PROCUREMENT FROM OUTSIDE :**A. Comparative Vaccine Procurement till Dt.17.07.2020: (All the figures are in doses)**

Sl. No.	Name of the Vaccine	2016-17	2017-18	2018-19	2019-20	2020-21 (Up to Dt.17.07.2020)
1	FMDV	13296000	9000000	4600000	11521100	0
2	GPV	1743300	1200000	2000000	3000000	0
3	PPRV	4000000	0	8600000	2000000	0
4	Brucella V	2500	42500	0	49540	0
5	ARV	13700	50000	10017	16000	44000
TOTAL		19055500	10292500	15210017	16586640	44000

B. Comparative Vaccine Supply till Dt.17.07.2020: (All the figures are in doses)

Sl. No.	Name of the Vaccine	2016-17	2017-18	2018-19	2019-20	2020-21 (Up to Dt.17.07.2020)
1	FMDV	9743250	10457450	6691900	10753550	232000
2	GPV	1718000	1994800	1660100	4209100	174000
3	PPRV	3746400	1421300	4279700	6247300	43000
4	Brucella V	2500	42500	0	49540	0
5	ARV	7000	50050	16567	100	40180
TOTAL		15217150	13966100	12648267	21259590	489180

FUTURE PLANS :

- The present production meets the requirement of vaccines in the state.
- There is a plan to prepare Aluminum gel based HS and BQ vaccines by which the dose rate per vaccination can be reduced and immunity period will increase.
- OBPI, Bhubaneswar plans to establish a scientific Experimental Animal House with the facility for breeding and trading of Laboratory animals like Rabbit, Guinea pig and Albino.
- The Institute plans to sell surplus vaccines to the states like Jharkhand, Manipur and Mizoram on cost basis.
- Imparting training to interested persons regarding production of HS and BQ vaccines through GMP and their quality control by expert members.
- Establishment of a GMP laboratory at Berhampur.

GOOD MANUFACTURING PRACTICE LABORATORY :

Good Manufacturing Practice (GMP) compatibility Bacterial Vaccine Production Laboratory for HSV & BQV production (as per the Drug and Cosmetic Act, 1940 of India and Government of India Notification No. GSR-864(E), Dt.11.12.2001) using fermentation technology has already been established at this Institute by which the future demand of the state can be fulfilled.

SOME PHOTOGRAPHS :



Visit of Hon'ble Commissioner-cum-Secretary to GMP Laboratory



Processing of HS Vaccine in GMP Laboratory during trial batch of OBPI, Bhubaneswar



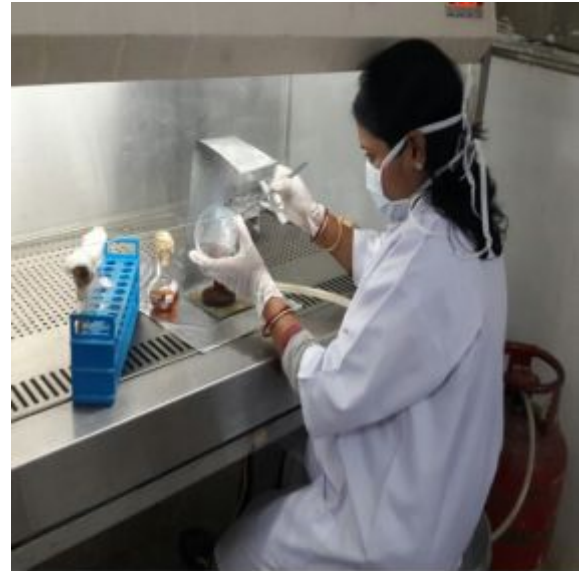
Bottling of Anthrax Spore Vaccine



Entero Toxemia Vaccine Flasks



BQV safety testing



Maintenance of bacterial seed culture



Experimental Animal House



Animals under observation after inoculation of BQV



Freeze Drying of RD R₂B Vaccine



Phosphate Buffer Solution

Growth in 4 lit flasks after 72 hrs of incubation



Processing of Black Quarter Vaccine