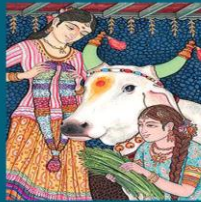


## Foot and Mouth Disease Vaccine Indian Economic Impact



**No. 1 in Milk Production 130 - 135 MT**

LIVESTOCK IS AN ECONOMIC INSTRUMENT  
FOR

RURAL SOCIO ECONOMIC TRANSFORMATION @ GRASS ROOT LEVEL

## LIVESTOCK POPULATION

FAO	(in Mio)	1995	2000	2012
Species	World	India	India	India
Cattle	1295	193	219	217
Buffalo	150	79	94	112
Sheep	1081	45	58	85.5
Goat	627	118	123	162
Pig	897	12	16	12.2
Poultry	12273	435	750	800

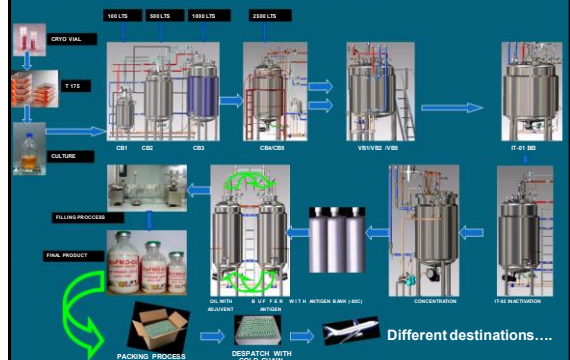


## Eco Friendly FMD Production Plant @ Malur - Bangalore, India



**Bio-safety & Bio-containment facility  
BSL<sub>3</sub>+Ag**

## PRODUCTION PROCESS



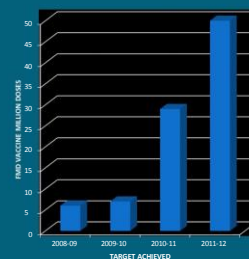
## ANTIGEN BANKING

- SERO TYPE ---- A O ASIA-1
- MIO DOSES ---- 05 05 05

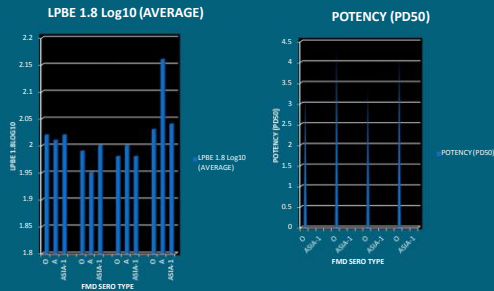


05 MILLION DOSES MAINTAINED - AS INVENTORY

## FMD VACCINE PRODUCTION



### SEROCONVERSION AND POTENCY



### FMD- CATTLE SALIVATION



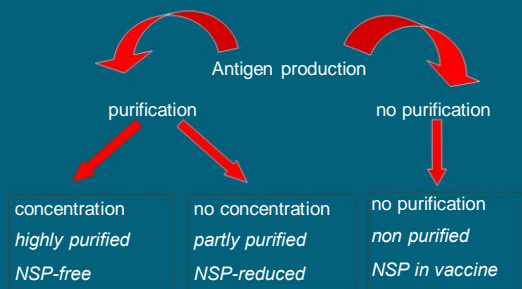
Cattle are highly susceptible and readily show clinical disease

### Biovet PD<sub>50</sub> EXPERIMENT



### BSL3+ CONTAINMENT

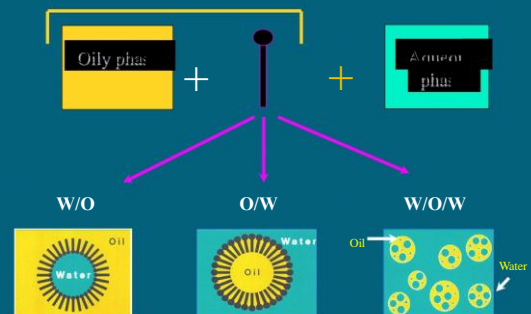
### ANTIGEN PURIFICATION & CONCENTRATION



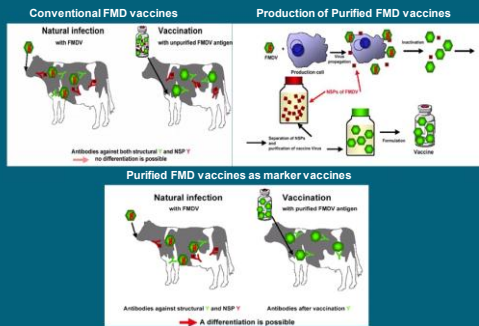
### ANTIGEN

- TCID<sub>50</sub>/ML : 5.5- 6.5
- 146s  
(Sucrose Gradient) : 5-12μg/vaccinating cattle dose.
- Adjuvant - SEPPIC OIL.

### OIL ADJUVANT VACCINE



### STRATEGY FOR PURIFIED VACCINE



### Biovet Focus Areas

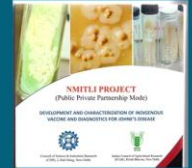
#### Vaccine Launching :-

- Haemorrhagic Septicaemia Vaccine
- Black quarter Vaccine
- HS + BQ Vaccine
- Enterotoxaemia Vaccine
- Fowl cholera Vaccine



#### Product Development under Public Private Partnership:-

- Paratuberculosis (Jhone's Disease Vaccine)
- Rapid Diagnostic Kits - FMD, DIVA, JD & BT.
- Blue tongue Vaccine
- Salmonella Vaccine (Avian)
- Adjuvant Development



### Vaccination of Indian Cattle against "Foot and Mouth Disease" -1943, O,A,C confirmation, Asia-1 - 1956-57.



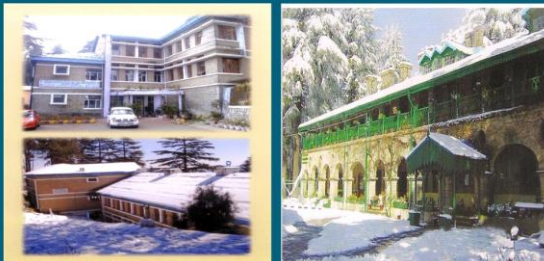
\$5 BILLION LOSS PER YEAR – FMD

GLOBAL RINDERPEST FREE WORLD...

### NETWORKING, COOPERATION AND COORDINATION



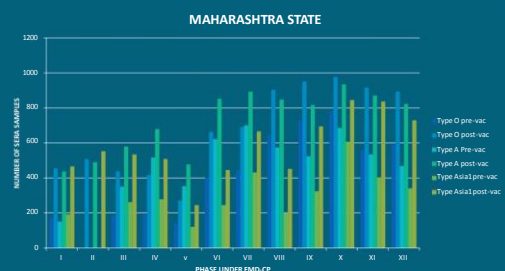
### OIE/FAO/WRL GLOBAL FMD VACCINE STRAIN MATCHING



GLOBAL VACCINE BANK....

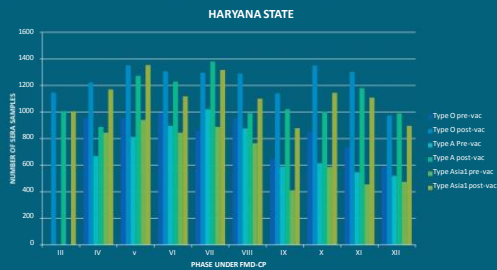
REF. LAB. NETWORKING

### SERO MONITORING IN FIELD





## SERO MONITORING IN FIELD



## FMD OUT BREAKS/CASES IN INDIA DURING 2006-07 TO 2010-11

YEAR	INDIA	AFRICA	ASIA/PACIFIC	EUROPE	AMERICA	ANTARCTICA	TOTAL
2006-07	224	07	23	29	431	64	778
2007-08	445	20	35	31	258	88	877
2008-09	64	18	33	16	66	43	240
2009-10	59	55	20	24	365	75	598
2010-11	51	09	29	18	29	40	176
<b>TOTAL</b>	<b>843</b>	<b>109</b>	<b>140</b>	<b>118</b>	<b>1149</b>	<b>310</b>	<b>2669</b>

FAO-ICAR INTERNATIONAL CONFERENCE ON 13-15<sup>th</sup> FEBRUARY 2012  
REDUCTION OF OUTBREAK/CASES 50-80% POST VACCINATION

## FIELD REPORT

FMD OUT BREAK NEAR BANGALORE



Type "O"



Monovalent vaccination option - matching vaccine strain / field strain

## Economic farming system models



Think Globally .....



Act locally.....

One World...

One Health...

One Medicine...

Global Control Framework...

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