

African Union



**AU-PANVAC  
Laboratories**



**GF-TADs**

GLOBAL FRAMEWORK FOR THE  
PROGRESSIVE CONTROL OF  
TRANSBOUNDARY ANIMAL DISEASES

*Africa*

# Maintaining Africa free from Rinderpest & Vaccine bank

*Dr Charles BODJO, Ag Director AU-PANVAC*



# Overview of the Presentation

- ❑ Maintaining Africa Free From Rinderpest
  - Recall on AU-PANVAC Rinderpest Holding Facility (RHF) status
  - Renewal of AU-PANVAC Rinderpest Holding Facility Status
- ❑ Current RP Continental Vaccine Reserve
- ❑ Production of New RP Vaccine Stock



## AU-PANVAC Rinderpest Holding Facility Status

- ❑ **Category A:** Rinderpest Holding Facility for storing **Rinderpest Virus Containing Material**, excluding vaccine stocks
- ❑ **Category B:** Rinderpest Holding Facility for storing only manufactured **Rinderpest Vaccines, Vaccine stocks** and material solely for their production:

*RECALL on The Executive Council Decision [EX.CL/Dec.610\(XVIII\)](#) of the Africa Union adopted at its Eighteenth Ordinary Session held in Addis-Ababa, Ethiopia on 24 to 28 January 2011, Addis-Ababa, Ethiopia regarding the Report of the Eighth Conference of Ministers of Animal Resources [Doc. EX.CL/590 \(XVII\)](#) that **called for Members States to hand over what is deemed necessary to AU-PANVAC for safe storage to maintain an Africa free from rinderpest***



*Africa*





# Rinderpest Holding Facilities (RHF) in the World

Institute of Veterinary Drug Control & China Veterinary Culture Collection Center (IVDC), Beijing, CHINA

High Containment Facilities of Exotic Diseases Research Station, & National Institute of Animal Health, Kodaira, Tokyo, JAPAN.

AU-PANVAC ETHIOPIA.

The Pirbright Institute, Surrey, UK

CIRAD), Montpellier, FRANCE

USDA-APHIS, (FADDL), Plum Island, New York, USA.



# Renewal of AU-PANVAC RHF Status



*Inspection conducted in October 2022 by Experts Designated by FAO-WOAH  
Rinderpest Secretariat*



*Africa*



# Extension of AU-PANVAC RHF Status



## Categories A and B until 31 May 2026.





# RP Continental Vaccine Reserve

- ❑ Inaugurated on **31 Jan. 2018** by Chairperson of the AUC, H.E Moussa Faki Mahamat



- ❑ AU-PANVAC hold the **Biggest RP vaccine reserve (2,5 million doses)**


- ❑ RP Vaccine stock is currently being replenished with new **2 million doses**



# Quality Control of Current RP Vaccine Stock



**The current RP Vaccine 2,5 million doses were from LANAVET (Cameroon) & NVI (Ethiopia) during PARC Programme.**



**P. DES P. R./RINDERPEST**

**LABORATORY RESULTS REPORT**

Lab Reference Batch Number: R2/17 (2)  
Date Received: 13/07/2017 Country of Origin: ETHIOPIA

**Sender:**  
Dr Nick Nwankpa, African Union Headquarters  
P.O. Box 3243 | Roosevelt Street (Old Airport Area) | W21K19 | Addis Ababa, Ethiopia  
Tel: (251) 11 551 77 00 | Fax: (251) 11 551 78  
44, EMAIL - aupanvac@africa-union.org,  
EMAIL - nicknwankpa@gmail.com

**LABORATORY RESULTS REPORT** **RE-REPORT**

Lab Ref: R2/17 (2) Report Date: 23/08/2018  
Date Received: 13/07/2017 Country of Origin: ETHIOPIA Date Tests Completed: 23/08/2018

**Tests Requested And Method Followed:**  
BVD real-time PCR, Mycoplasma real-time PCR, RPV virus titration SOPs - NVR-SOP-50

Sample Number	Animal Id	Other Details	BVD	Myc	RP titration	Final Result
R2/17-001	Bovipestovax BP GAROUA, CAMEROUN	100 DOSES date 2004, VACCINE	NEG	NEG	POS	10 <sup>3.63</sup> TCID <sub>50</sub> /ml
R2/17-002	NVI, Rinderpest vaccine	3-09 100 DOSES, VACCINE	NEG	NEG	POS	10 <sup>5.00</sup> TCID <sub>50</sub> /ml
R2/17-003	Rinderpest Vaccine Seed Rbok BK95 vero02	02/01/97, VACCINE	NEG	NEG	POS	10 <sup>3.37</sup> TCID <sub>50</sub> /ml
R2/17-004	Rinderpest Vaccine Seed Rbok BK92 vero05	05/11/94, VACCINE	NEG	NEG	POS	10 <sup>5.23</sup> TCID <sub>50</sub> /ml
R2/17-005	RBOK/BK95 VERO1, PANVAC	PAN-R001 Nov 1994, VACCINE	NEG	NEG	POS	10 <sup>5.00</sup> TCID <sub>50</sub> /ml
R2/17-006	RBOK/BK92 VERO5, PANVAC	PAN-R001 Nov 1994, VACCINE	NEG	NEG	POS	10 <sup>5.27</sup> TCID <sub>50</sub> /ml

- Tested in August 2018
- RP Vaccine titer above **3 log<sub>10</sub>** remain GOOD



# Production of New RP Vaccine Stock

Feb. 2019: AU awarded contract to NVI (Ethiopia) for production of **2 Million Doses**

Inspection of NVI facility by RP-Secretariat took place on **October 2022**

AFRICAN UNION  
الاتحاد الأفريقي

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INTEROFFICE MEMORANDUM

To: Director, AU-PANVAC  
Through: Thereza Negokhe Louise (IPC Secretary)  
From: Thereza Negokhe Louise (IPC Secretary)  
Subject: **INTERNAL PROCUREMENT COMMITTEE DECISION: Request for Approval for the supply of Tissue Culture Rinderpest Vaccine to AU-PANVAC**

File No.: AHRM/PTSD/IPC/1/2.19  
Date: 5<sup>th</sup> February 2019  
Sender's Tel. Ext.: 4321

Reference is made to your request on the above matter to the Internal Procurement Committee Decision in respect of Evaluation report for approval.

Consequently the 1<sup>st</sup> Internal Procurement Committee Meeting which was held on Thursday 24th January 2019 has considered your request as follows:

Observation:  
IPC took note of the procurement process as explained by the resource persons. The first part of the process being approval of Companies to participate in the Limited Competition process. IPC further noted that there was a huge difference in price between the two bidders. The resource person explained that the reason for this could be the transportation cost. The vaccines require a special shipment process which turns out to be expensive. A chartered plane could be used and in some cases they're escorted by the military. The locally based bidder therefore has a greater advantage

Decision:  
IPC approved the award of contract for Supply and delivery of 2 million doses of Tissue Culture Rinderpest vaccine to AU PANVAC, to National Veterinary Institute of Ethiopia at a total price of ETB ETB2,017,500 (US\$71,965.67)

CC: - All Members of IPC

GF-TADs  
GLOBAL FRAMEWORK FOR THE PROGRESSIVE CONTROL OF TRANSBOUNDARY ANIMAL DISEASES

Rome, Paris, 10 November 2023

Dear Dr Tefera,

The Food and Agriculture Organization of the United Nations (FAO) and the World Organisation for Animal Health (WOAH) present their greetings and refer to previous communications between the African Union (AU), National Veterinary Institute (NVI), FAO and WOA, specifically the letter from AU to FAO and WOA on 19 March 2019, the letter from NVI to FAO and WOA on 8 April 2019, and the letter from FAO and WOA to NVI on 17 September 2019 and 5 March 2023.

The FAO-WOAH Rinderpest Joint Advisory Committee (the Committee) has reviewed the proof of implementation of the corrective actions, listed in the report of the site inspection to your facility which took place on 16-21 October 2022.

We are pleased to inform you that the Committee during their virtual consultations held in August and September 2023, recommended that FAO and WOA authorised NVI to exceptionally manufacture rinderpest vaccine (Plowright/RBOK vaccine) to replenish the vaccine reserve at the African Union – Pan African Veterinary Vaccine Centre (AU-PANVAC), noting that the vaccine seed will be shipped from the FAO vaccine seed bank: Centre de coopération internationale en recherche agronomique pour le développement (CIRAD), France, to AU-PANVAC. We remind you that in the post-eradication era safety and efficacy tests can no longer be done in live animals and a strict production process by AU-PANVAC, a thorough independent review of the full batch release dossier and the batch quality controlled at AU-PANVAC.

We kindly ask you to liaise with the FAO-WOAH Rinderpest Secretariat at [rinderpestsecretariat@fao.org](mailto:rinderpestsecretariat@fao.org) and [rinderpest@woah.org](mailto:rinderpest@woah.org) to coordinate the shipment of vaccine seed in accordance with your availability to start the production campaign.

Thank you for supporting FAO and WOA's mission to keep the world free from rinderpest.

Yours sincerely,  
Dr Thanawat Tiensin, Director, Animal Production and Health Division, Food and Agriculture Organization of the United Nations  
Dr Monique Eloit, Director General, World Organisation for Animal Health

Dr Takele Abayneh Tefera, Director General, National Veterinary Institute Bishoftu/Debre-Zeit, Ethiopia

CC:  
AU-PANVAC: S. C. Bodjo  
FAO: K. Sumption, M. J. Arshed, K. Sudo, FAO Regional Office, FAO Subregional Office, FAOR  
WOAH: M. Arroyo, K. Hamilton, M. Marrana, WOA Delegate, RR Africa, SRR Eastern Africa

Nov. 2023: Exceptional authorisation by FAO-WOAH JAC to National Veterinary Institute (NVI), Ethiopia, to produce a New Vaccine to **replenish the RP vaccine reserve at AU-PANVAC.**



# Technical Assistance Provided to NVI

## □ Induction of staff involved in RPV production:

- Each staff sign a commitment to comply to all SOPs associated with RPV production and adhere to safety and biosecurity protocols.
- In light of the potential risks associated with this work, staff are committed to avoid any contact with susceptible animals (including domestic and wild species) for a period of at least one month following the last handling of the rinderpest vaccine strain..

## □ Cleaning and validation of vaccine production laboratory and the equipment (biosafety cabinets, incubators, fridges, freezers, etc).



# Testing of Raw Materials

## (vaccine seed, cells, media and solutions)

- ❑ Vero cells (ECACC, originated from AU-PANVAC) which was transferred to NVI for RP vaccine production.
- ❑ RPV identity
- ❑ Freedom from contamination done at AU-PANVAC (BSL3):
  - The Reference seed supplied by CIRAD was found contaminated and a report submitted to WOA/FAO
  - Result was later confirmed by CIRAD





# FAO-WOAH Joint letter



- ❑ AU-PANVAC requested WOAHA/FAO for authorization to test and use RP vaccine seed from PANVAC Repository
- ❑ Approval for the quality control of RBOK vaccine seed from AU-PANVAC Repository

*Joint letter from Assistant Director General/Director Animal Production and Health Division (FAO) and Director General of WOAHA for the approval to conduct quality control testing on RBOK vaccine seed from AUPANVAC Repository to identify suitable candidate(s) for vaccine production at NVI, replacing the CIRAD vaccine seed*



# Vaccine seed from PANVAC Repository

4 batches of RP seeds from AU-PANVAC's Repository have been selected for testing.

S/N	Seed Strain	Seed Origin	Produced by	Production Year	Passage Level
1	RPV vaccine RBOK Strain	USDA, APHIS, FADDL	AU-PANVAC	05/11/1994	BK 92 / VERO 5
2	RPV vaccine RBOK Strain	USDA, APHIS, FADDL	AU-PANVAC	November 1994	BK 92 / VERO 5
3	RPV vaccine RBOK Strain	AVRI, Pirbright, UK	AU-PANVAC	November 1994	BK 95 / VERO 1
4	RPV vaccine RBOK Strain	AVRI, Pirbright, UK	AVRI, Pirbright, UK	1985	BK 95



# Testing of RP vaccine seed from PANVAC Repository

- ❑ RPV identity
- ❑ Sterility : All four batches demonstrated no bacterial or fungal growth after 14 days of incubation, indicating successful sterility for each batch.
- ❑ Freedom from extra-genous agents: Mycoplasma, BVD, RVE, PPR, Camel Pox, Capripoxviruses, Blue tongue and FMDV
  - PCR Test conducted
  - Conclusion: all the RP vaccine seed batches were found negative for Mycoplasma, BVD, RVE, PPR, Camel Pox, Capripoxviruses, Blue tongue and FMDV.





# Titration of RP vaccine seed from PANVAC Repository

The titration showed that all the batches of RPV seeds remain with good titre

S/N	AU-PANVAC Reference Number	Seed Origin	Produced by	Production Year	Passage Level	Titer (TCID <sub>50</sub> )/vial
1	P312/0001/12/24	APHIS,FADDL	PANVAC	05/11/1994	BK 92 / VERO 5	10 <sup>5.9</sup>
2	P313/0001/13/24	APHIS,FADDL	PANVAC	11/1994	BK 92 / VERO 5	10 <sup>6.3</sup>
3	P314/0001/14/24	Pirbright, UK	PANVAC	11/1994	BK 95 / VERO 1	10 <sup>6.0</sup>
4	P315/0001/15/24	Pirbright, UK	Pirbright,UK	05/1985	BK 95	10 <sup>4.4</sup>

**3 vials of RP Seed (P313/0001/13/24) with a titer of 10<sup>6.3</sup> TCID<sub>50</sub>/Vial were transferred in Nov 2024 to the National Veterinary Institute (NVI), Ethiopia for vaccine production.**



# Sequencing of AU-PANVAC RP vaccine Seed

❑ Full genome sequencing performed by CIRAD on 3 RP vaccine seed samples from AU PANVAC

		CIRAD RBOK strain MN632618		PANVAC 312 RPV seed RBOK BK92 + vero5				PANVAC 313 RPV seed RBOK BK92 + vero5				PANVAC 314 RPV seed RBOK BK92 + vero1			
Genome coverage (%)				98.7				98.9				98.0			
Mean depth (Nbr reads)				1028				871				153			
Gene	Posit Bp	AA	Base	AA	Base	%	Nbr reads	AA	Base	%	Nbr reads	AA	Base	%	Nbr reads
F	5719	D	G	D	G	75	503	D	G	74	415	N	A	85	87
F	5795	V	T	A	C	95	815	A	C	95	664	A	C	89	108
H	7788	P	C	P	C	76	878	P	C	72	603	L	T	96	174
H	7995	K	A	K	A	77	800	K	A	74	569	I	T	94	160
H	8897	R	A	R	A	81	875	R	A	78	683	R	C	87	145
L	12857	Y	T	Y	T	68	1100	Y	T	72	935	H	C	91	203

❑ The PANVAC P312 & P313 are identical and show one nucleotide difference with the CIRAD RBOK sequence (MN632618).

❑ The PANVAC P314 shows 6 nucleotide differences from the CIRAD RBOK sequence.

❑ None of these 6 mutations have been observed in genome sequences of RPV virulent strains publicly available.

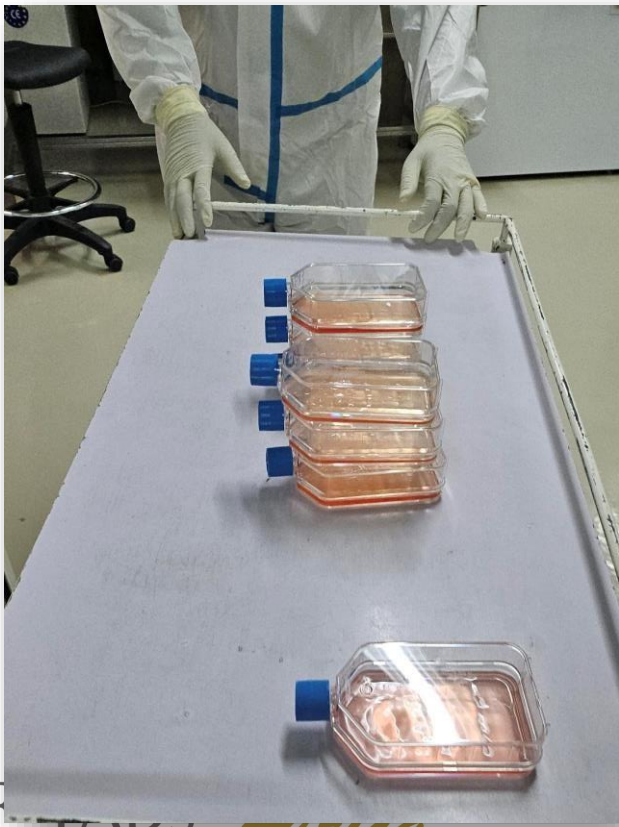


# RP Vaccine Production at NVI

Production realized by NVI staff was under the supervision of AU-PANVAC.

□ 2 lots of working seeds

□ 2 lots of bulk antigen produced



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# RP Vaccine Production at NVI: Next Step

- Blending the bulks with stabilizer
- Dispensing and freeze-drying
- Quality control of the freeze-dried vaccine
- Transferring the vaccine to AU-PANVAC
- Disinfection and Qualification of the Production Lab





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