

# Deploying in-vitro Tissue Culture Techniques in Multiplication of ACMV-free Cassava Cuttings meant for Farmers

**Eliminating the debilitating cassava mosaic virus from the farmers' fields would provide a greater guarantee of the role of cassava in food security and poverty reduction in West and Central Africa.**

Cassava has become a most important food security crop in West and Central Africa. It is in fact the third most important source of calories in the tropics, after rice and corn. It is easy to grow, and it delivers abundant yield even in very poor soils and low rainfall. Cassava could provide a balanced diet that can protect millions of poor people in West and Central Africa from malnutrition. The bulky roots contain a high concentration of starch which could be used as food and as industrial raw material. The leaves are rich in proteins, vitamins and minerals. The productivity of cassava is, however, challenged by a plethora of pests and diseases. One of the most debilitating disease causing agents in cassava is the Africa Cassava Mosaic Virus (ACMV), which could be transmitted through cassava cuttings used as planting materials. An infected leaf has white or yellow spots, twisted, distorted, and stunted. A heavily infested plant is retarded and dwarfed since the photosynthetic process is hampered. Clean planting, free from this virus, would magnify cassava yields.

This CAADP-aligned project is using in vitro tissue culture in the multiplication for distribution of ACMV-free cassava cuttings to farmers aimed at improving production in Ghana, Liberia, Sierra Leone, Niger, Benin, Côte d'Ivoire, and Togo. The project is particularly focused on the multiplication of planting materials of best yielding varieties of cassava appreciated by farmers and adapted to various production environments in the region.



## Main Beneficiaries

Farmers will benefit from increased cassava yields resulting from use of ACMV-free cassava planting materials. Consumers of cassava leaves will benefit from improved nutritional status of the healthy leaves. The participating scientists will benefit from advanced techniques in cassava tissue culture for multiplication and preservation of healthy cassava cuttings.

## Main Regional Benefits

Introduction of ACMV-free cassava planting materials into the countries of the region is expected to multiply cassava yields by several folds, hence strengthening the paths to food security in the region.

## Partners

This project is funded by USAID, and is coordinated by CORAF/WECARD. The implementing partners are the following: Crop Research Institute, Ghana; Central Agricultural Research Institute of Liberia; Sierra Leone Agricultural Institute; Institut de Recherche Agronomique, Niger; Institut National de Recherches Agricoles du Bénin; Centre National de Recherche Agronomique de la Côte d'Ivoire; Institut Togolais de Recherches Agronomiques, Togo ; and IITA, Nigeria.

Components	Outputs	Outcomes	Impact
<p><b>1</b></p> <p><b>Technologies &amp; Innovation</b></p>	<ul style="list-style-type: none"> <li>Farmer preferred high-yielding and adapted varieties of cassava for multiplication identified.</li> <li>In vitro sanitized cassava samples produced for distribution.</li> <li>Simplified molecular-based virus indexing methods developed.</li> <li>Innovative system combining standard <i>in vitro</i> tissue culture with improved traditional multiplication methods for ACMV-free cassava cuttings multiplication proposed.</li> </ul>	<p><u>Outcome 1</u> Selected climate-smart cassava germplasm sustainably preserved.</p> <p><u>Outcome 2</u> Optimized yield potentials of relevant cassava germplasm.</p>	<p><b>Increased contribution of cassava to food security in West and Central Africa</b></p> <p><b>Improved cassava productivity in West and Central Africa</b></p>
<p><b>2</b></p> <p><b>Planting Materials Production &amp; Distribution</b></p>	<ul style="list-style-type: none"> <li>Tissue cultured ACMV-free planting materials capable of covering 2000 ha produced</li> <li>Professional organizations commissioned to produce and distribute ACMV-free planting materials</li> </ul>	<p><u>Outcome 3</u> Increased availability of ACMV-free planting materials</p> <p><u>Outcome 4</u> Increased access and use of ACMV-free planting materials</p>	<p><b>Increased income generating ability of cassava farmers</b></p>
<p><b>3</b></p> <p><b>Capacity Strengthening</b></p>	<ul style="list-style-type: none"> <li>Research infrastructure capacity of NARS relative to use of tissue culture techniques strengthened</li> <li>Technical capacity of NARS research scientists to conduct tissue culture based multiplication of cassava planting materials strengthened</li> <li>Capacity of professional organizations to produce and effectively distribute healthy cassava cuttings strengthened</li> </ul>	<p><u>Outcome 5</u> Enhanced capacity of NARS to use tissue culture in the production of healthy cassava planting materials</p> <p><u>Outcome 6</u> Enhanced capacity of professional organizations to produce and distribute healthy cassava planting materials</p>	<p><b>Increased income generating ability of cassava farmers</b></p>

**For more information**

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