



# Report

## RUSTICA's Global Stakeholders Workshop in Palmira - Colombia 18 - 20 April 2023

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## 1. Overall setting of the workshop

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The overall goal of the workshop was to stimulate debate and knowledge exchange among stakeholders on circular food systems in Latin America. More specifically, we wanted to focus on the valorization of waste streams from agri-food residues and how concepts and frameworks developed in the RUSTICA project ([www.rusticaproject.eu](http://www.rusticaproject.eu)) can be applied, or adapted, to the contexts of Latin America.

The multi-actor approach is embedded in the RUSTICA project. Global workshops are thereby crucial. A first global workshop took place in Leuven, in May 2022, where the main focus was on the European context. This second workshop allowed to open up the debate, with special attention to the Latin American context.

Rather than going into the technical details of specific waste recycling technologies, we wanted to discuss drivers and barriers of innovations contributing to circular food systems. We explored pathways for transformation towards the bio-based economy in Latin America, and what interventions and mechanisms are needed to bring about change. Furthermore, we aimed at enlarging and enforcing existing and new networks in order to stimulate cooperation in the domain of the bio-based circular economy.

## 2. Organization

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On the 18th of April 2023, a diverse group of over 50 stakeholders met at the CIAT campus in Cali, for a second global workshop. The workshop was organized by KU Leuven and CIAT. The event brought together participants representing a broad group of stakeholders including policy makers, industry, NGO, farmer organizations and researchers from Latin America and Europe. EU delegates have been invited, though unfortunately neither the representatives from DG AGRI nor the EU delegates based on Latin America could make it.

## 3. Main findings of the workshop

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- We experienced a great willingness of all experts attending the workshop to share ideas and experiences. Both the Colombian and the other Latin American experts clearly express a great interest to take action.
- Similar to the outcomes of regional RUSTICA stakeholder workshops in Europe, the experts point towards lagging legislation as well as the need to financial support in order to speed up transition.
- There is an overall need for scientific evidence on what is feasible in terms of reducing the use of synthetic fertilizers as well as on the replacement of synthetic fertilizers by biobased fertilizers.
- Larger players are also interested in the development of biobased fertilizers, though the markets need to be ready for this transition.
- There are clear differences in the potential of waste streams. As an example, the use of cacao waste in the development of biobased fertilizers is less challenging than using waste from sugar cane.

## 4. Specific Latin American / Colombian context

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- The Colombian government recognizes the importance of the bioeconomy as a whole. This is for example translated into incentives to invest in agroecology.
- Biobased fertilizers are promoted and several organizations, including Agrosavia, invest in the campaigns that should reach both farmers and consumers
- Technologies for the development of the bioeconomy are still under development, and in a premature phase as compared to most European regions. For example, Colombia only counts 10 biogas installations and none of them is probably economically profitable.

### Bottlenecks identified for the development of biofertilizers

- Certification. Certification is managed by ICA. It takes a long time, 2-3 years, to become certified. There is a lack of training on how to obtain a certificate.

- Another serious bottleneck for the development of the circular bioeconomy is the lack of a well organized collection of waste.
- Lack of knowhow on the danger of some pesticides and waste streams
- Landfills are still the cheapest options for waste
- Cultural barrier for developing the circular economy.

### Towards food smart cities and communities

- There are several organizations active in Colombia in the domain of agroecology. This holds e.g. for IMCA, which also invests in micro credits for local communities.
- Rikolto explores in several Latin American countries the potential of the circular economy. Smallholders in e.g. Honduras and Nicaragua are confronted with very high prices for synthetic fertilizers. Rikolto tries to establish an enabling environment for communities, local governments, producer groups or cooperatives to stimulate the development and the use of biofertilizers.
- Also at CIAT, food smart cities is on the agenda. There is an enormous lack of data. Yet, it is sure that over half of the population of Cali is food insecure and at the same time, over 50% of Cali's population suffers from overweight. There is over 300.000 ton of food waste per year.

## 5. CIAT – RUSTICA

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- Small scaled biogas installations are currently tested. First tests with pig manure lead to good results. Plant growth is as good as with synthetic fertilizers.
- Testing of black soldier fly and related breeding programs.
- Biochar – CIAT is not investing in new technologies for the development of biochar. The aim is rather to make current products more available.

## 6. Outcomes from the final discussions

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### How can international consortia help overcome current bottlenecks?

- Technological and knowledge
  - ✓ Work articulated with companies, academia, and producers.
  - ✓ Financing of science, technology and development projects.
  - ✓ Validation and technology transfer
  - ✓ A permanent entity/platform for project continuity.
  - ✓ Open platform that facilitates constant interaction.
- Market
  - ✓ Structuring/validating business models according to local needs
- Social
  - ✓ Encourage training and associative strengthening through chain organizations and agro-climatic technical roundtables.
- Political – legal
  - ✓ Articulation with standards and certifications.
  - ✓ Contribution of the project to the formulation of long-term state policies.
- Other
  - ✓ Generate documents and promote spaces to impact public policy.
  - ✓ General indicators of national acceptance

### What other activities should we develop at RUSTICA to strengthen EU-LAC exchange?

- Applied research



- Roadmaps
- Applied knowledge exchanges
- Experimental unit at CIAT (field and laboratory)
- Close linkage with academia (research groups)
- Incorporate successful experiences in the agenda
- Decentralization of the territory
- Fostering spaces for the exchange of technological and international experiences.
- Collectively promote the participation of ICA, Ministries and other government entities that participate in the regulatory framework.
- Platform that evolves into a partnership
- Greater visibility of actions

### What feedback can we report to the European Commission?

- Field evaluation in the real EU/LAC context
- Expansion of field application with small and medium-sized producers
- Need for qualification/logistics.
- How Sustainable/profitable
- Need to reflect on how to make info/expertise available for producers
- Think of crops/cases relevant for scaling up (e.g cacao / export crops )
- Cooperation between the different actors

## 7. Opportunities for the future

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Several potential pathways for further collaboration have been expressed.

- During the field visit to Jaime Andrés Arbelaez, the idea was raised to elaborate the work that has been done on business model development in Flanders, to the case of Jaime's farm on which both avocado and bananas are grown.
- USAID expresses the openness to discuss on potential research ideas related to RUSTICA

## 8. Programme of the workshop

DAY 1: Tuesday 18<sup>th</sup> of April

**Location:** CIAT campus, Palmira

Time	Activity	Who
8:45 - 9:00	<b>Registration</b>	
9:00 - 9:15	<b>Welcome speech - Agenda - Round Table</b> Setting the scene with a focus on establishing network, translation of technological frameworks into diverse farming practices in a context of the global South and development of roadmaps for business model	Tessa Avermaete, KU Leuven Mirjam Pulleman, Alliance Bioversity-CIAT
9:15 - 9:35	<b>European challenges for sustainable farming practices and valorizing waste streams</b> How does the RUSTICA project contribute to meeting the challenges? What specific technological frameworks do we deliver? How do we establish networks? How do we develop business models?	RUSTICA partner Nathan Deman and Erika De Keyser
9:35 - 9:45	Q&A on the previous session	Jose Arana, Alliance Bioversity-CIAT
9:45 - 10:00	<b>Challenges for sustainable farming practices in Colombia</b> Current government's political agenda	Isabel Cardenas, Ministry of Agriculture
10:00 - 10:30	Keynotes on the challenges of sustainable farming practices with <b>focus on the need to reduce fertilizers</b> <ul style="list-style-type: none"> <li>- Research experiences on sustainable farming systems</li> <li>- How policy and regulations respond to the transition towards alternative fertilizers</li> <li>- Experience on the transition to alternative fertilizers and challenges in the registration and certification of these products</li> </ul> <p>Q&amp;A</p>	Paola Cuartas, AGROSAVIA – Bioproducts Department Mauricio Madriñan, ABONICOS S.A.S
10:30 - 11:00	Coffee break & networking. Local stakeholders fair	
11:00 - 12:30	<b>Opportunities on cooperation in an international context</b>	
11:30 - 11:30	<b>Alliance's approach - link food systems and circular agriculture</b> (bio-based-fertilisers, circular economy business models - RUSTICA, NATURE+)	Guillermo Peña, Alliance Bioversity-CIAT
11:30- 12:00	<b>Reflections from networks and organizations 'in the field'</b>	
	IMCA (local producers organization)	Ricardo Cardenas
	Rikolto	Zaira Colindres
12:00 - 13:30	Lunch + Local stakeholders fair	
13:30 - 14:00	<b>Reality check and the role of key players on the market</b>  Main bottlenecks to market access and possible solutions identified	Julián A. Villanueva, VEOLIA Beatriz Eugenia Arrieta, Bayer Luis Julian Urdanivia, Biofertil Elliot Dominguez, HUAO SAS
14:00 - 14:45	<b>Implementing principles of bio-based economy into a context of food smart cities - focus on Cali</b>	

	Context Cali - food smart cities	Sara Rankin, Alliance Bioversity-CIAT
	RUSTICA implementation - an economic reflection	Erika De Keyser, KU Leuven
	From prototype to implementation - lessons learned from FOX and ZEROW	Lisa Van den Bossche, EV ILVO
	Reflections from the implementation of RUSTICA in Valle de Cauca	Lizette Diaz, Alliance Bioversity-CIAT
14:45 - 15:15	Guided discussion	Jose Arana, Alliance Bioversity-CIAT
15:15 - 15:45	Coffee break	
15:45- 16:30	<b>Conclusions of the 1<sup>st</sup> day</b>	Mirjam Pulleman, Alliance Bioversity-CIAT Tessa Avermaete, KU Leuven

## DAY 2: Visit to initiatives in the Region - 19<sup>th</sup> of April

Time	Activity
06:30 – 07:30	Transfer from Hotel in Cali to composting plant at Providencia SA
07:30 - 09:30	Visit to composting plant at Providencia SA (sugar cane mill)
09:30 - 12:00	Transfer from Providencia S.A. to Rancho Alegre
12:00 - 13:30	Visit to Rancho Alegre (banana/avocado farm)
13:30 - 15:30	Transfer from Rancho Alegre to HUAO SAS
15:30 - 17:00	Visit to HUAO SAS (composting plant)
17:00 – 17:45	Transfer to hotel in Cali

- **Ingenio Providencia (sugarmill)**

Juan Esteban Fossi - Composting Plant Coordinator

[jefossi@providenciaco.com](mailto:jefossi@providenciaco.com)

Website: <https://www.providenciaco.com/es/producto/provicomp/>

<https://www.providenciaco.com/es/>

Ingenio Providencia is an agro-industrial company dedicated to developing products and services derived from the sugarcane industry. It has four plants: sugar, alcohol, cogeneration of energy and composting. It produces PROVICOMP from the residues of sugar and alcohol production. PROVICOMP is an organic fertilizer produced through a composting process that has physical, chemical, and biological benefits for the soil, improving its structure, stimulating the passage of nutrients, and maintaining a high level of microbial life, resulting in a healthier soil.

- **Finca Rancho Alegre**

Jaime Andrés Arbelaez - Manager

[proacor@hotmail.com](mailto:proacor@hotmail.com)

Avocado and banana production with organic fertilization (broiler manure)

- **Humus Abonos Orgánicos, HUAO S.A.S (Composting and vermiculture plant)**

Eliot Dominguez – Manager

Andrés Dominguez

[humusabonos@hotmail.com](mailto:humusabonos@hotmail.com)

Website: <https://www.humusabonosorganicos.com/>

Since 2004, Humus Abonos Orgánicos has specialized in the biological transformation of non-hazardous organic waste into substrates for agriculture and gardening. Our production plant located in the

municipality of Yumbo has a capacity to process 1,500 tons per month of organic waste through composting and vermiculture processes. We have the knowledge, infrastructure, machinery and suitable human talent, which guarantees processes with high quality standards and products that respond to the needs of an increasingly demanding market, aware and committed to sustainable development and care for the environment.

### DAY 3: RUSTICA Workshop – 20<sup>th</sup> of April

Time	Activity	Who
9:00 - 09:40	<b>Welcome</b> Reflections on the field visit. Group interaction	Tessa Avermaete, KU Leuven Mirjam Pulleman, Alliance Bioversity-CIAT
09:40 - 10:10	<b>Panel: Topic 1 - The RUSTICA approach: multiactor networks</b> -What have we learned this week about multi-stakeholder networks? What are the highlights? Are there any pitfalls? -How can this multi-stakeholder approach be further strengthened to drive innovation? What can we improve? Moderator: Mirjam Pulleman	Víctor Martínez Gomez, UPV Jhon Jairo Hurtado, Alliance Bioversity-CIAT Ana Lucía Uribe, USAID Juan Cortés, Entomo
10:10 – 10:30	Coffee break	
10:30 - 11:00	<b>Panel: Topic 2 - Closing nutrient cycles</b> Reality check: To what extent is it possible to close nutrient cycles in agricultural systems (e.g., coffee, fruit, sugarcane, etc.)? - What are the main constraints, or challenges? - What are the opportunities for improvement? Moderator: Tessa Avermaete	Liliana Arango, Starbucks Estefania Chaves, Yara. Germán Estrada, Agrosavia Lus Stella Cadavid, UNAL Mirjam Pulleman, Alliance Bioversity-CIAT
11:00 - 11:45	<b>International Exchange: Lessons Learned and Next Steps</b> Introduction (Tessa) Explanation of the group exercise (Jose Arana) Issues to work on in groups: -How can international consortia help to overcome current bottlenecks? -What other activities should we develop in Paperback to strengthen EU-LAC exchange? -What feedback can we report to the European Commission?	All participants
11:45-12.00	<b>Closing of the workshop</b>	Tessa and Mirjam
12.00- 13:15	Lunch Break - local products fair	
13:15 - 15:00	<b>Visit Future Seeds and Circular Economy Platform</b>	
15:00 - 17:00	<b>Networking and bilateral meetings (optional)</b>	
17:15	Transfer to Cali	
19:00	Closing dinner in Cali, Ringlete restaurant	

**On day 3** we visited Future Seeds, the world's largest bean, cassava and tropical forage gene bank built on the Alliance Bioversity and CIAT campus to preserve plant biodiversity and support cutting-edge agricultural research. The workshop participants had the opportunity to know more about this building that houses more than 65,000 crop varieties, contributing to their conservation and also providing genetic material free of charge for researchers and producers globally to grow new varieties resistant to climate change, and thus promoting scientific innovation. We had also the opportunity to visit the Circular Economy Platform, where waste valorization trials with some RUSTICA technologies are taking place. Three intern students, supporting the experimental work at the platform, showed us the pilot installations and explained us the technologies with very descriptive and clear info graphs: Valentina presented us the biogas pilot plant, Kevin explained us the approach for biochar production with gasifier stoves and Daniela shared with us the experiences establishing the black soldier fly colony.

## 9. Participants

Nombre	Organización/Entidad
Álvaro Jose Franco	Mendiola SAS
Ana Lucía Uribe	USAID
Andrés Domínguez	Humus Abonos Orgánicos SAS
Beatriz Eugenia Arrieta	Bayer
Camilo Restrepo Mejía	Colanta
Carlos Alberto Ramírez	Programa de Radio NuestroOxígeno
Carlos Dorado	CIAT
Carlos Sánchez Castaño	Palladium
Carolina Vallejo Vargas	Colanta
Christian Guerrero	CIAT
Daniela González	CIAT
Diana Lucía Correa	AGROSAVIA
Diego Alejandro Grillo Paéz	BIOSOS
Elliot Domínguez	Humus Abonos orgánicos SAS





Elverth Stainer Diaz Jaramillo	BIOSOS
Erika De Keyser	KU Leuven
Estefanía Chaves Chaves	Yara
Flor Ángela Sánchez Santos	Centro de Apoyo al Productor de Starbucks
Gerardo Gallego	CIAT
Germán Estrada	AGROSAVIA
Guillermo Peña Chipatecua	CIAT
Hugo Kuratomi	BIOAGRO
Jaime Arbelaez	Rancho Alegre
Janeth Bolaños	CIMMYT
Jelen Julieth Mora Orozco	Programa de Radio NuestroOxígeno
Jhon Jairo Hurtado	CIAT
Joaquín Hernández	Veolia
Joaquín Navia Ramirez	EcoVital
Juan Carlos Córdoba Varón	Centro de Apoyo al Productor de Starbucks
Juan Cortes Ortiz	ENTOMO
Juan Guillermo Lozano Arango	SAG Valle del Cauca
Julián A. Villanueva	VEOLIA
Julián Esteban Masmela	CENICAÑA
Kevin Cuero	CIAT
Liliana Arango	Centro de Apoyo al Productor de Starbucks



Lisa van den Bossche	ILVO
Lizette Díaz	CIAT
Luz Stella Cadavid	Universidad Nacional de Colombia
Marian Aguilar Quintero	Programa de Radio Nuestro Oxígeno
Martha Lucía González	NBF Colombia
Martin Londoño	CIAT
Mauricio Madriñán	ABONICOS SAS
Mirjam Pulleman	CIAT
Mónica Lemos Cáceres	EcoVital
Natali Rendon Carmona	CIAT
Natalia Canacuan	CIAT
Natalia Carmona	CIAT
Natalia Ortiz	CIAT
Nelly Lorena Vidal	Mendiola SAS
Néstor Romero Perilla	CIMMYT
Paola Emilia Cuartas	AGROSAVIA
Roosevelt Escobar	CIAT
Santiago Verdugo	Rapipulpas
Sara Rankin	CIAT
Tessa Avermaete	KU Leuven
Valentina Pulido	CIAT
Víctor Martínez Gómez	Universitat Politècnica de València
Zaida Colindres	Rikolto LAC (Honduras)



## 10. Related reading material

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- [LINK methodology: a participatory guide to business models that link smallholders to markets. Version 2.0. \(cgiar.org\)](#)
- [An optimization model minimizing costs of fertilizer application in Flemish horticulture.pdf](#)