

Development Bank Group (AfDB)

2. **Dr. Temesgen Desalegn**, Director, Natural Resource Management Research, Ethiopian Institute of Agricultural Research (EIAR)
3. **Michael Kamau**, Sector Manager - Agricultural Inputs, Kenya Markets Trust (KMT)
4. **Theresia Numbi**, Project and Marketing Manager for Dodoma Cement, Tanzania
5. **Pierre Celestin HABYARIMA**, Manager of Mashyuza Processing Company (MPC Ltd), Rwanda

Main highlights:

(*For Insights and newsletter. To be based on the theme of the day. Fill in in bullet form)

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KEY CHALLENGES

- Lack of demand due to limited awareness on the benefits of lime in treating soils with low pH; Agricultural lime is still a new concept to most of agriculture stakeholders
- Logistics and high cost of transport and application of lime
- Last-mile transportation cost to farmers due to bulkiness of the input.
- Limited availability of quality lime; in most of the countries market is dominated by sub-standards lime with low price but low productivity
- Limited access to Soil testing services
- Limited push from the Governments: apart from few countries like Rwanda and Ethiopia, the Governments' policies or strategies have not made agricultural lime a priority.
- Land right is a limiting factor of lime use as in some countries like Tanzania, most of farmers rent farms and so, they are hesitant to apply agricultural lime
- Policy issues: Lack of clear quality guidelines and standards for agricultural lime, limited policies and incentives to support increased awareness, use, availability/production and distribution of agricultural lime

INNOVATIONS PROPOSED

- Lime granulation which could interest more farmers who are users and solve the logistics for transportation and application
- Micro-dosing technology could be used to reduce the volume of lime and encourage farmers
- Engaging governments to include lime in input subsidy programs and reduce some taxes.
- Possible institutional innovation: the Coordination Company Model which is a new form of resource management that organizes land owners,

professional agronomists, machinery service providers, agriculture information services, global inputs providers, investors and oftakers.

RECOMMENDATIONS/ NEXT STEPS

- The management of acid soils needs investment from both public and private sector. Strong PPPs are needed
- An in-depth analysis and knowledge are required to design, adopt and scale up a suitable acid soil management approach; data sharing needs to be improved
- Need to find appropriate delivery models, i.e. taking technologies to scale
- Awareness on soil health and nutrition, including use and benefits of powdered and granulated lime use.
- Consideration should be given to granulating lime through a decentralized arrangement to reduce transport costs and facilitate application.
- There is need to develop standards on quality lime at the market and quality level for granulated lime.

Session Summary:

(*To go in final report. Max 300 words. Fill in prose)

African agriculture could deliver about \$ 350 billion each year by 2030 but these are vulnerable and face challenges, including soil acidity in many countries. In line with the theme of AGRF 2021 on forging pathways to recovery and resilient food systems, this side event has given evidence on how rehabilitating acid soils is important for improved productivity and resilient food security. Soil acidity is a significant problem in many countries like Ethiopia (44 % of the arable land), Rwanda (2/3 of Rwandan soils) and Tanzania (16.5% of the total area of Tanzania). The availability of macronutrients and micronutrients which, at an optimal level are critical for plants healthy growth and food production, are affected by the level of pH. Liming is the most widely used long-term method of soil acidity amelioration, and its success is well documented. Application of lime at an appropriate rate brings several chemical and biological changes in the soil, which are beneficial in improving crop yields on acid soils. Many research results have shown good impact of liming on yield: 34–252% increase in wheat, barley and tef and 42–332% increase in potato in Ethiopia; 111–182% increase in maize in Kenya, 45–103% increase in Mucuna in Nigeria. Liming is profitable for smallholder farmers as demonstrated by the speaker from the Ethiopian Institute of Agricultural Research, with the investment of 1\$ leading to a benefit of 7\$ in Ethiopia.

Furthermore, constraints to large-scale acid soil rehabilitation were identified including limited awareness on the benefits of lime, logistics and high cost of transport, application of lime, limited availability of quality lime and policy issues among others. Increasing the

production of granulated lime, technological soil innovations, developing and implementing appropriate delivery models, i.e. taking technologies to scale, policy reforms are some innovations/solutions that were identified. In addition, there is a need to better manage production systems with good agronomic practices. For instance, investing in fertilizer on acid soils is just a big loss. An annual loss of 43.5 % of fertilizer applied on acid soils, representing USD 67 million, is estimated in Ethiopia for example. Governments should therefore rethink input subsidy programs by adding lime. There is a need for advocacy and actions from private sector and Government and strong PPPs in terms of investments and policy reforms to stimulate production and use of quality lime for resilient and sustainable food systems for our continent.

Tweetable quotes with timestamp:

(*For podcast and to go to AGRF Communication for social media. Minimum 3 per session)

- 16:43 “We don’t have to start from scratch. We can use the experience from, for example, Brazil which has about 50 years of experience” (Sam Gameda)
- 16:46 “It’s not about acidity alone. We need to understand the cause of acidity” (Jean-Jacques Muhinda)
- 16:54 “We have to look beyond lime: for crops to reach nutrients at depth, we may need gypsum” (Martin Fregene)
- 17:03 “Coordination companies can be a big innovation” (Jean-Jacques Muhinda)
- 17:07 “Areas where soil acidity dominates are otherwise areas of high agricultural potential, with high rainfall and good soil depth” (Temesgen Desalegn)
- 17:09 “Traditionally, the only option available to farmers is fallowing, or conversion to eucalyptus plantation” (Temesgen Desalegn)
- 17:15 “This is the mistake we are making in many countries: subsidizing fertilizers that are applied to acid soils, and end up being lost” (Jean-Jacques Muhinda)
- 17:22 “Most lime producers are into the production of lime for other purposes than agriculture: for roads, construction, etc” (Michael Kamau)
- 17:24 “Transport costs make up 19% of the gross margin” (Michael Kamau)
- 17:24 “Lime is dusty, bulky and tedious to apply” (Michael Kamau)
- 17:27 “60% of farmers would prefer granulated lime to powdered lime” (Michael Kamau)
- 17:36 “Governments don’t give the same priority to lime as they do to fertilizers” (Theresia Numbi)
- 17:38 “Lots of smallholders misconceive lime as a business concept or as a substitute to fertilizers” (Theresia Numbi)
- 17:40 “A lot of unnecessary taxes are applied to lime when it is transported” (Theresia Numbi)
- 18:04 “We do not have large scale demonstration that can influence policy makers” (Temesgen Desalegn)
- 18:09 “In Kenya, awareness of lime is high but adoption is still low” (Michael

Kamau)

How has the session contributed to the AGRF outcomes?

*(For end of AGRF communique/ Press release. List 3 - 5 top outcomes)

- Showing the evidence of soil acidity and its impact on productivity
- Sharing information and lessons from countries
- Identifying innovations and recommendations to rehabilitate acid soils and thus contributing to food security and import substitution

COMMITMENTS

- Continue research and share with others
- Undertake policy review to show evidence where policy reforms are needed
- Undertake advocacy to create awareness of all stakeholders for greater investments from public and private sector to increase availability and use of quality lime.