TOPIC
Innovation

Gains for Generations with Biochar

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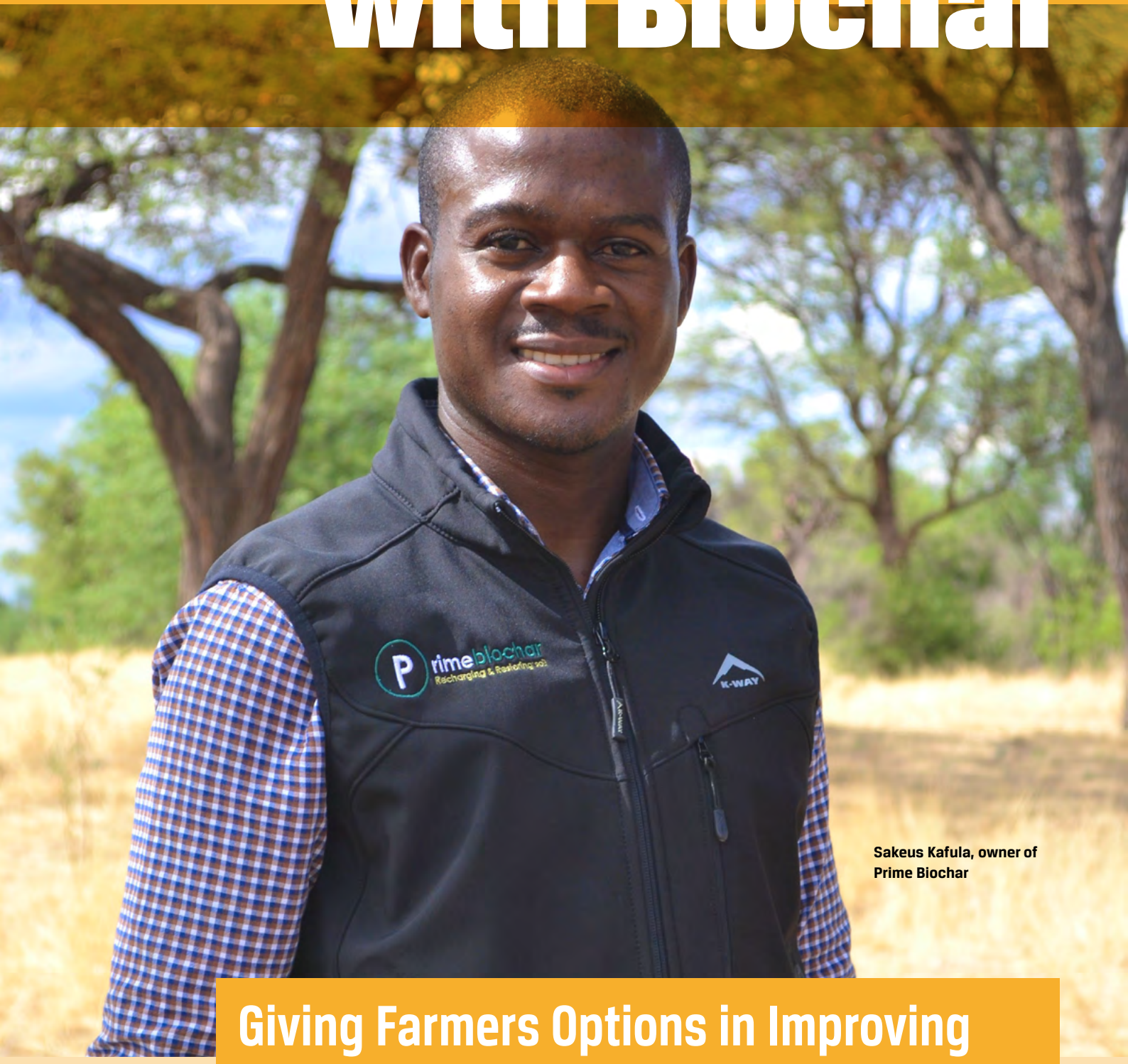

Sakeus Kafula, owner of Prime Biochar

Giving Farmers Options in Improving Soil Quality

Are there other practices besides rainfall or irrigation and fertiliser, that a farmer may need to have, to ensure bountiful harvests? According to a young Namibian, Sakeus Kafula, his product is not only manufactured using biomass from encroacher species, but also holds the answer to healthy ecosystems and gains for generations.

Sakeus grew up watching common agricultural practices in Northern Namibia and the resulting signs of degradation to the land. "I grew up in a communal area, and it was the trend for us to plough every year, but we were destroying the soil over time. I remember when I was a child, seeing the eagles that would come feast on the earthworms in the soil. That time the soil was living, it was alive. Today if you plough, there are no birds anymore, it's a sign that the soil health has declined. The soil is not alive anymore."

Soil is living and dynamic, and although slowly, a changing environment. When it is diseased, it is degraded and therefore limited in its ability to sustain plant and animal productivity and diversity, as well as human health and habitation.

Using Science to Improve Agriculture

Microbial fungus, which is comprised of a multitude of species that grow in a mesh like structure deep into the soil, provide a ladder for the plant's roots to reach nutrients. These two forms a mutually beneficial relationship, with the plant providing carbohydrates that feed the microbial fungus and the fungus growing deeper into the earth offering the plant more opportunities for securing nutrients and water. Adding microbial fungus to biochar, is what gives you microbial biochar.

"If you look at how a plant feeds, most plants will draw their moisture and nutrients, from a depth of 40 centimetres. If you apply biochar to the soil, the roots of plants do not need to grow further than this depth to find water and nutrients, and they can use their energy to produce greater yields" says Sakeus.

Often soils in Namibia have poor cohesion and structure, coupled with low water retention and organic matter levels. When you add grazing animals and extensive ploughing practices, the result is overgrazing and in some cases the onset of desertification. A situation that can only be reversed with effective land manage-

Sakeus demonstrates poor topsoil quality found in Namibia with his product, a solution to this problem.

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A look at Biochar up close

ment practices. Fertiliser prices have also seen price increases of late, and if fertiliser leeches below a crops root zone, which is often the case with poor soil conditions, the money spent is of no value.

A Solution to Poor Topsoil Health

A solution to poor topsoil health found in Namibia, is the addition of biochar to the soil. Biochar is created using encroacher species of bush biomass. Complementing the Namibian charcoal industry, biochar is made using parts of encroacher species seen as 'waste' in charcoal production. These smaller pieces of the encroacher species biomass are then used to create the biochar.

The biochar then has microbial fungi added to it. "The fungi we use is the type that works with plants. We mix this in with the soil, and the soil becomes more productive" says Sakeus, who together with Joel Kafula, started Prime Biochar which is producing microbial biochar in Namibia.

The benefits of biochar are not only available to crop farmers, as Sakeus explains that it can also be safely added to livestock licks and feeds, and in doing this, animals are more easily able to utilise and digest poor quality feed. Additionally, the adding of microbes to an animal's diet, reduces their methane production with an added benefit for the environment.

"People see yields going down or longer dry spells, and they think this is just the norm, but this is where biochar comes into play. It can help your crop survive these dry spells." While it might be expensive initially to apply biochar to your soil, as Sakeus explains, "you apply it once and it can last in the soil for thousands of years."

The Passion that Drives this Business

Prime Biochar still a relatively young business, has already won first place in the Namibia Biomass Industry Group (N-BiG), Encroacher Bush Business Plan Competition of 2019. "We have been engaging with farmers to create awareness about biochar, and are busy setting up local research trials, but it has been hard and research costs money" notes Sakeus.

Despite the challenges, Sakeus remains passionately steadfast to his goal. "If soil becomes unhealthy, life leaves, and we need to bring that life back. I saw from a young age how our practices were degrading the environment, and I knew this was what I needed to do, to be in a space that can help rectify some of these things."

Biochar is new in Namibia. It is being practiced in organic agriculture and by several farmers in central Namibia. The product has immense potential to contribute to climate change adaptation. The Namibia Charcoal Association (NCA), Namibia University of Science and Technology (NUST) are championing research activities as well as training and capacity building for production and application in various parts of the country. A newly released brochure title "Biochar from Namibia Encroacher Bush" provides practical guidelines for producers.

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Further sources:

Booklet: ▸ Biochar from Namibian Encroacher Bush: Practical guidelines or producers.

Namibia Charcoal Association ▸ website