AIM HUB BLOG

Where Seed Learns to Breathe

Five University of Eldoret students, one breathable bag, and a quiet revolution in how Kenya keeps its potatoes

By Dr. George Ariya, Farooq Shaaban, Venah Kwamboka, Emmanuel Korir, Mellisa Gitonga and Emily Bochabery

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Prototype Breeze Bags sewn by Team Breeze Labs, with drawstring closures and ventilation mesh panels.

Every harvest carries a promise. In the cool highlands of Molo and Njoro, the potato leaves the soil firm, earthy and full of possibility, destined for a family table, a market stall or the furrow of the next season. Yet within weeks, in the dim warmth of an ordinary gunny sack, that promise begins to fade. Pale shoots reach for a light that never comes, skins soften and shrivel, and unseen bacteria turn tubers to rot. What was harvested as hope is too often discarded as loss.

The arithmetic of loss

The numbers are sobering. Sub-Saharan Africa loses about 23% of its food between harvest and retail, the highest share of any region on Earth (FAO, 2025). For Kenya's potato growers, losses at the farm level alone may reach KSh 14.5 billion every year (Bachewe et al., 2026). In Nakuru County, farmers can lose up to 40% of their produce after harvest, and together with Nyandarua the county grows close to half of the nation's potatoes (Mwangi & Wangari, 2022).

Beneath these figures lies a deeper wound. Certified seed covers less than 5% of the land planted with potatoes in Kenya (Atieno et al., 2026), so the seed for tomorrow's harvest is the tuber a farmer saves today. Shangi, the nation's favourite variety, is generous in the field but fragile in the store. At room temperature it can sprout completely within a month and surrender about a third of its weight in three months (Gikundi et al., 2023). When seed spoils in storage, the next season is lost before it is ever planted.

A question worth asking

It was this quiet tragedy that five first-year students at the University of Eldoret chose to confront. Farooq Shaaban, Venah Kwamboka, Emmanuel Korir, Mellisa Gitonga and Emily Bochabery asked a disarmingly simple question. What if the vessel that holds the harvest could also protect it?

Their answer is the **Breeze Bag**, a reusable storage bag sewn by local hands from durable, breathable fabric. Mesh panels invite a steady exchange of air, and a natural lining crafted from locally available farm materials stands guard against decay, without a single synthetic chemical. The design honours a timeless principle of post-harvest science. A tuber is a living thing. It breathes, and it must be spared the warm, damp stillness in which decay thrives.

From a campus pitch to a global stage

In March 2026, the team stepped before external judges in the University of Eldoret round of the Food Systems Innovation Challenge (FSIC) 2026, organised by Wageningen University & Research (WUR) and the Netherlands Food Partnership. Their idea withstood an international review and earned one of two places for the University of Eldoret in the 2026 global programme, alongside 30 teams from 17 universities across the world.

From April to September, AIM Hub became both their workshop and their classroom. Guided by AIM Hub mentors and WUR coaches, the students sewed and refined

prototypes, carried their bags into the fields of Molo and Njoro, and listened closely to about 50 farmers. Those conversations reshaped their vision. Farmers spoke not only of prices but of seed, and of the quiet arithmetic by which a spoiled store becomes a thinner crop.

The first testimony of evidence

In a nine-week trial at the university laboratory, the bag offered its first testimony. Of ten tubers monitored in an ordinary gunny bag, seven succumbed to rot. In the Breeze Bag, none did. Greening, the bitter warning sign of solanine, touched 80% of monitored tubers in the gunny bag but only 10% in the Breeze Bag.

The team holds these results with scientific humility. A single bag of each kind is a beginning, not a verdict, and the rigour of replicated trials must follow. Yet every great inquiry begins with a result worth questioning.

Wageningen, and the courage of a first step

On 29 September 2026, Mellisa Gitonga carried the team's work to the Grand Finals in Wageningen, the Netherlands.

"It was breathtaking," Mellisa recalls. "Standing on an international stage for the first time, surrounded by brilliant students from every corner of the world, I felt both small and limitless at once. Every conversation opened a new window. The lesson I carry home is to prepare even more deeply next time, because the world is ready to listen when you are ready to speak."

The Breeze Bag did not advance to the final six. Yet the worth of a seed is never judged by the season in which it is sown, but by the harvest it becomes. The team returned home with sharper questions, wider horizons and a resolve undimmed. Their dream of change has only begun to take root.

"This was the University of Eldoret's first time in the Food Systems Innovation Challenge, and our students have shown the world what African youth can achieve when imagination meets mentorship," said Dr George Ariya, Head of AIM Hub and the University of Eldoret coordinator of the challenge. "In a few short months, first-year students turned a problem they saw in their own communities into a tested prototype, shared it with farmers and carried it to Wageningen. That journey is precisely what AIM Hub exists to nurture. We are deeply grateful to Wageningen University & Research and the Netherlands Food Partnership for organising this remarkable challenge, to its supporters, including the Foundation for Food & Agriculture Research, Wageningen Ambassadors and University Fund Wageningen,

and to Mirjam Troost, the challenge coordinator at WUR, whose vision and generosity open doors for young innovators everywhere. Our first step onto this stage will not be our last."

The seasons ahead

The next chapter will be written on farms. Together with AIM Hub, the team is preparing replicated trials in Nakuru and Nyandarua, where farmers will store their own seed potatoes in Breeze Bags and the students will follow that seed from the store into the soil, measuring not only what is saved but what it grows into.

Science, at its finest, is an act of care. It is the patience to measure, the humility to doubt and the courage to try again. In one simple, breathable bag, five young scientists from Eldoret have stitched together all three. The harvest they seek is larger than any sack of potatoes. It is a future in which no farmer watches the promise of a season wither in the dark, and in which the seed that feeds Kenya is kept as faithfully as it is grown.

Students with an idea for a better food system will find a home at AIM Hub. Write to aimhub@uoeld.ac.ke.

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