

Market Insight Brief No. 6

School Feeding at Scale: The Untapped Opportunity

Transforming Food Systems with Solar-Powered Milling

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A G S O L



Photo credits: Agsol. WHH supported school in Kitui, Kenya.



Schools as Strategic Launchpads for Clean Food System Innovation

In 2024, Agsol partnered with Kenyan school feeding NGO **Cup of Uji** to install the first MicroMill in the school kitchen of a rural primary school. The goal was simple: enable the school to mill maize on-site to cut the high costs of outsourced milling services and serve fresh, nutritious porridge to hundreds of pupils every day.

What began as a pilot is now growing into a quiet transformation. Not just for the schools and lives that are measurably impacted, but also what the sector opportunities mean for Agsol as a social enterprise.

One year later, 12 schools across Kenya and Uganda are equipped with Agsol's solar-powered MicroMills, **serving more nutritious wholegrain meals to over 6,000 children every day**. In many cases, these schools are evolving into local food hubs, offering affordable community milling after school hours, with women operators as new gatekeepers of food quality. This model blends nutrition with local livelihood generation and reinforces school feeding as a shared community effort.

At the heart of our work is a belief:

Every rural community in Sub-Saharan Africa should have access to affordable, nutritious food through clean, decentralised milling. We now believe schools can, and should, lead this transformation!



"Ideally, every village [in Africa] should have a modern, solar-powered mill fitted with a dosifier to mix vitamins and minerals into the flour." — Global Alliance for Improved Nutrition ([GAIN](#))

Measurable Impact: 12 Schools (9 Kenya, 3 Uganda)

Implementing partners: WFP, Welthungerhilfe (WHH), Rockefeller Foundation, Cup of Uji

6,000+ students fed per day	\$16,000 in new revenue potential per year
>2 million wholegrain meals enabled annually	45,000 hours of women’s time saved each year
15 tons of CO ₂ emissions offset annually	600+ households accessing clean, affordable milling services

These numbers represent more than just metrics. They show how a single solar-powered unit can deliver on nutrition, economic opportunity, climate resilience, and gender inclusion. And they underscore the exponential opportunity!

Reference:
Kenya has about 65,000 public schools. Scaling Agsol MicroMills to 5,000 schools would cover just ~8% of public schools—a small yet high-impact fraction of the opportunity!

Projected Impact of School-Based MicroMill Deployment

	12 Schools (Currently)	5,000 Schools (Scale-Up)
Students fed per day	6,000	2.5 million
Wholegrain meals/year	2 million	833 million
CO2 avoided/year	15 tonnes	6250 tonnes

Data sources & key metrics

- Remote monitoring units installed on mills (IoT)
 - Manual reports from operators and schools
 - Qualitative interviews
- Grain milled: 1 kWh = 65 kg flour
 - Meals served: 130 gr/meal (WFP standard)
- Revenue: based on serving 60 households/mill, 75 kgs a day
 - CO₂ offset: kg x 0.0536 CO₂ (IPCC Guidelines for National Greenhouse Gas Inventories)
- Kenya has ~65,777 public schools (32,461 pre-primary, 23,831 primary, 9,485 secondary). Source: Kenya Ministry of Education, 2023 (via StatsKenya, Jan 2025)

Fixing the Weakest Link in School Feeding Systems

Across Sub-Saharan Africa, school feeding programs are a critical lifeline for millions of children as one of the largest and most powerful social safety nets. According to the WFP, over **87 million children** in Africa received school meals in 2024. School feeding programs are also an effective vehicle to deliver impact at scale, with every **\$1 invested returning US\$9** in improved health, education, and productivity.

Yet a core challenge remains: in the rural and off-grid areas where most school feeding programmes operate, **food processing is inefficient, costly, and nutritionally inadequate**. Grains are typically milled at distant, diesel-powered mills that are expensive, inaccessible, and contaminate flour with diesel fumes and mould.

These mills also place a heavy burden on the communities that depend on them, especially women, who carry sacks of grain over long distances and wait in queues for hours. Across sub-Saharan Africa, diesel mills consume around 900 million litres of fuel each year, emit over 2.3 million tonnes of CO₂, and contribute to widespread food safety concerns.



Partnering for Impact

With over 80 million children across Africa depending on school meals—often their only meal of the day—these programs rely on sector champions to scale. For Agsol, this includes partners like Welthungerhilfe (WHH), the Rockefeller Foundation, World Food Programme (WFP), and Cup of Uji, as organisations that recognise the **role of Productive Use of Renewable Energy (PURE) technology in transforming informal food processing systems.**

Together with public and private partners, Agsol has deployed MicroMills in 12 schools in Kenya and Uganda. Each partner supported a different set of schools, and all contributed to transforming them into local anchors for inclusive, resilient food processing systems. Here's an overview of the joint impact we've achieved together over the past 18 months.



Cup of Uji - Kenya



Cup of Uji - Kenya



WFP supported school - Uganda



WFP supported school - Uganda



WHH supported school - Kenya



WFP supported school - Uganda

Unlocking the Opportunity: Why This Model Matters

Across Sub-Saharan Africa, school feeding programs are a powerful delivery platform, but the food systems behind them are failing. The weakest link is food processing: outsourced, expensive, polluting, and nutritionally inadequate. Agsol's solar-powered mill changes this.

By anchoring milling directly at schools, we transform them **from passive recipients into active hubs of community nutrition, livelihoods, and resilience.**

Installed at Schools, the Solar Mill Unlocks:

- Cleaner, safer flour with higher nutrition
- Up to 50% lower milling costs for schools & rural communities
- Zero-emission milling, replacing diesel dependency
- Local crop utilisation & food-to-food blending, improving diets
- Women's economic empowerment as operators & entrepreneurs

Theory of Change: *Equipping every off-grid school in Sub-Saharan Africa with a solar-powered mill catalyses better child nutrition, women's empowerment, and resilient local food systems.*



“By growing food in school gardens and using local crops, we cut costs, improve nutrition, and build food systems schools can own. Paired with clean cooking and milling, the model is sustainable, scalable, and truly homegrown.”

Francis Amonde, Founder, Cup of Uji



School Feeding at Scale: The Untapped Opportunity

With the right support, solar milling can unlock a future where rural women thrive as economic leaders, children are well-nourished, and communities are climate-resilient!

Contact us to learn more

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Annexes: Case Studies

Real stories of how school feeding with solar-powered milling is transforming nutrition, livelihoods, and resilience in communities.



A G S O L



Welthungerhilfe (WHH) Kenya



Welthungerhilfe (WHH) is one of Germany's largest development NGOs, with a strong focus on food and nutrition security.

Since 2023, WHH has installed 22 Agsol MicroMills across rural Kenya. Five are embedded in schools, where local milling of wholegrain flour has played a key role in improving child nutrition. In these five schools, 1,220 children now receive daily wholegrain meals—often their only meal of the day. Since school feeding began, administrators have reported improved and sustained attendance. With WHH's support, schools grow their own maize in kitchen gardens, with parents contributing seeds and labour.



Each on-site MicroMill can process enough grain to feed up to 2,000 students a day, significantly cutting transport and milling costs while ensuring a steady supply of nutritious flour. After school hours, the mills also serve the wider community, generating income for schools and expanding access to clean, affordable milling. Read more about our joint impact here: [Flour Power – Agsol and WHH Partnership Impact Report](#).



Photo Credit: Agsol. WHH supported school in Kenya receiving the MicroMill.

“More families are eating wholegrain flour, contributing to reduced child malnutrition, thanks to the combination of solar milling and ongoing nutrition education.” — Sarah Masai, WHH Nutritionist, Kitui Field Office



Rockefeller Foundation & FWGA



The Rockefeller Foundation is the founding partner of the Fortified Whole Grain Alliance (FWGA), championing the adoption of fortified wholegrain staples in institutional and public food systems across Africa.

Fortification through local cereals is central to the FWGA's mission, combining maize with nutrient-dense crops such as millet and legumes to deliver iron, protein, and other essential micronutrients. The MicroMill **enables this food-to-food blending directly at the school level**, helping to fight malnutrition while strengthening local agricultural value chains and reducing reliance on synthetic premixes. In a country where 50% of children are iron-deficient and 38% are stunted, this represents a critical intervention.

In May 2025, in Nyamira County, Kenya, a MicroMill funded by the Rockefeller Foundation and deployed with FWGA enabled this type of fortification for the first time within a school feeding context. This pilot marks the Foundation's first direct engagement in decentralised, on-site milling for school feeding, **demonstrating how clean energy, local agriculture, and fortified foods can converge in one scalable model**. The County Governor has since called for the model to be replicated in all public schools.



MGN TV

15 May at 19:25 · 🌐

Nyamira Governor Hon Amos Nyaribo Launches a portable Poshomill that'll be available In all public schools to facilitate free porridge to learners .

Facebook Post By MGN TV Kenya



WFP Uganda



World Food Programme

The World Food Programme (WFP) is the world's largest humanitarian organisation focused on food security and nutrition. Its school feeding program in Northern Uganda reaches over 320 schools in Karamoja, providing critical daily meals to children in one of the country's most food-insecure areas.

In Northern Uganda, the WFP Innovation Program is piloting decentralised, solar-powered milling for the first time. Three Agsol MicroMills, installed at KDA Moroto, Moroto Prisons, and Rainbow Primary, are already improving meal quality and reducing milling costs. Implemented by Tulima Solar in early 2025, the pilot has also sparked strong community interest in weekend milling use. **This pilot points to a scalable model for WFP's broader school feeding network across Uganda and beyond.**



WFP Benin

In Benin, WFP operates one of Africa's largest school feeding programs, reaching over 5,700 public primary schools and 1.4 million children. Five Agsol MicroMills are currently being piloted with an in-country partner, with active discussions with WFP to develop a low-cost fortification solution that can be added directly at the school level. With this, **WFP and Agsol are pioneering the first-of-its-kind turn-key solution that combines solar-powered milling with on-site grain fortification:** an integrated, clean-tech approach to enhance nutrition and position schools as local food system hubs.



Photo Credit: WFP Uganda. WFP staff with the MicroMill.



"We no longer pay for milling or wait long hours for food. Learners now eat quality posho instead of boiled corn."
— Staff at KDA Moroto Primary School



Cup of Uji Kenya



Cup of Uji is a Kenyan non-profit that delivers affordable, high-impact school feeding programs to underserved schools, helping children stay in school and thrive.

Agsol's entry into school feeding began in 2024 through a pilot with Cup of Uji at Athi River GK Prisons Primary School. Previously, the school relied on external suppliers for grain and milling, spending a staggering KES 12,000 (\$93) per month on grain purchases, milling fees, and transport.

With the MicroMill now installed on-site, maize is milled as needed, **cutting costs, improving hygiene, and providing students with more nutritious wholegrain porridge** that keeps them fuller for longer and better able to concentrate in class.

In just seven months, the system paid for itself through savings alone! Encouraged by these results, efforts are now underway to replicate the model in more schools.



Photo Credit: Agsol. Cup of Uji Founder Francis Amonde serving porridge.