

Hammering out better crops in *Zambia*

In northern Zambia the heavy rainfall (over 1,000mm per year) has washed the nutrients out of the soil, leaving it acid and high in available manganese and aluminium. This stops plant roots developing properly and means crops do not grow well.

Farmers, using the traditional farming practice of slash and burn, are having to reuse the same land after shorter fallow periods, before its natural fertility is restored. As a result they can only produce about two tonnes of maize, a staple food, per hectare. The farmers use fertilisers, but these make the soil even more acid.

The obvious solution is to add agricultural lime (aglime) to the land. The most common form is ground dolomite, a rock made of calcium magnesium carbonate. Added to soil, it raises the pH to more neutral conditions.

The trouble is farmers have to travel a long way to buy aglime, and transporting it is expensive, so only large scale farmers can afford it.

Clive Mitchell and Ellie Steadman, from the British Geological Survey's Economic Minerals and Baseline Geochemistry programme, have been working with Zambian researchers for

Farmers in Zambia will soon be able to grow better crops, thanks to a simple adaptation of a mill normally used to grind maize, and the help of the British Geological Survey, write
Clive Mitchell.

Prison workers preparing the dolomite for the mill.



the last two years on a way to help improve the soils.

The University of Zambia and the Zambian Geological Survey Department have been testing, with the help of Clive and Ellie, a Zambian-built hammer mill. Originally designed to produce maize flour, it has been adapted to grind dolomite into aglime.

The mill has been trialled in the Mkushi farming district of Central Province, where a large deposit of dolomite occurs. Inmates from the Munsakamba open prison volunteered to break the rock into fist-sized lumps to feed into the mill. The aglime produced has been used in crop trials to show the

benefits to local farmers.

Project leader, Clive Mitchell, said 'This could improve the life of many of the poorest people in southern Africa. Using aglime can lead to a four or five fold increase in the amount of food produced. Farmers can sell the extra food, which would enable them to improve their homes, buy better clothes, pay for healthcare and send their kids to school'.

The research will continue over the next few years, with the next phase likely to involve the setting up of a co-operative in a Zambian farming district to produce aglime for local farmers. The work is funded through the Knowledge and Research fund administered by the Department for International Development.



The author (far left) examining crops from trials using aglime.

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