

Big change with small doses

Preparing the micronutrient mixture

At times big changes require small interventions. The application of small doses of deficient microelements boron and sulphur to the soil in the watersheds being developed by ICRISAT has resulted in significant increase in crop productivity.



The success was achieved in the watershed projects being implemented by an ICRISAT-led consortium of institutions in Andhra Pradesh, Madhya Pradesh and Rajasthan in India. The Andhra Pradesh project is being implemented under the Andhra Pradesh Rural Livelihood Programme (APRLP) of the state government. The Madhya Pradesh and Rajasthan projects are implemented under the Sir Dorabjee Tata Trust.

The improved crop productivity due to the addition of boron and sulphur has encouraged the farmers to participate more intensely in the watershed development activities. It has also strengthened the belief of ICRISAT scientists that the participation of the farming communities in the watersheds is linked to the tangible financial benefits that individual farmers get in their farms. The interventions improved the crop productivity, which in turn facilitated a greater community participation in the watershed activities.

The amendment of the soil with boron and sulphur at the Kothapally watershed in Ranga Reddy district of Andhra Pradesh resulted in the farmers harvesting 350 additional kilogram per hectare for sorghum and 616 kg/ha for maize

Applying it to the soil



At the Milli watershed in Vidisha district of Madhya Pradesh, boron and sulphur addition resulted in 34 to 39% increase in soyabean yield. This resulted in a net profit of Rs 26,454 per ha. The farmers who had the interventions in their fields got a cost benefit ratio of 1:1.8, and those without the interventions got 1:1.3.

Despite the drought in the watersheds chosen under the APRLP in Nalgonda district of Andhra Pradesh, there was an increase in crop yield due to boron and sulphur micronutrient amendments. The farmers recorded 17 to 125% increase in greengram yield in these watersheds.

In other watersheds of Andhra Pradesh farmers recorded an average increase of 72% in maize yields, 60% for castor and 28% for groundnut.

The micronutrients in the soils in the watersheds have depleted over years due to changes in agricultural practices, fertilizer applications and productivity. The micronutrients are critical to increase the rainwater use efficiency in the watersheds. Micronutrient deficiency can also lead to inappropriate absorption of the macronutrients, which in turn would mean that farmers lose the money they invest into their crops.

For more information, contact s.wani@cgiar.org