



Editorial

This issue of the RECORDER presents two articles: Virtual Reality (VR) Trainings: Game Changers in “Agricultural Technology Transfer” by Keshav Kranthi and Sandhya Kranthi and ‘Sixteen Years of the SEEP Panel: Shaping Sustainability in the Cotton Value Chain’ authored by Lorena Ruiz and Mike McCue.

The first article on VR attempts to document the landmark achievement of the first-ever launch of VR as a new tool for technology transfer in cotton production, which probably also is the first use of VR in agriculture. The second article documents the ICAC’s efforts on supporting sustainable initiatives in cotton production through its SEEP panel and annual World Café held during Plenary Meetings.

VR training is a new addition to the list of audio-visual tools used in technology transfer. VR shows 360o films through a headset in 3D. Viewers will ‘experience’ the environment where the film was filmed, allowing them to see and hear any cotton field, anywhere in the world, at any point of the season. VR is not just a latest digital innovation, but it is also a powerful technology that gives great advantages for training and extension services, especially in agriculture.

Knowledge transfer is the biggest challenge in agriculture across the world. It is a greater challenge in least developed and developing countries where cotton is grown on farms by more than 28 million small holder farmers, mostly in Africa, China and India. The transfer of technology from lab to land is slow because, although the pace of technological advancement is fast, the infrastructure and manpower required to train 28 million farmers — many in very rural and remote areas — is small.

There are several tools that are used to train farmers in farmer field schools, including pocketbooks, leaflets, flipcharts, blackboards, PowerPoint presentations, audio, videos, radio and television. The usefulness of the training depends greatly on the tools used and the expertise and presentation skills of trainers. It is widely acknowledged that although most farmers in least developed and developing countries are less literate, they learn quickly from practical training because ‘seeing is believing’. Many countries have dedicated teams of extension workers who are expected to reach out to farmers to conduct practical training.

However, the extension efforts are unlikely to succeed because the number of trainers is grossly inadequate when compared to the vast number of small holder farmers. VR has the potential to fill this gap. It enables trainees to experience a virtual practical training programme anywhere and at any time. VR technology provides an immersive learning experience by transporting the trainee into a virtual world that is probably the closest that one can get to a live experience. The technology has advanced to a stage where it is possible to upload a VR film on YouTube that can later be accessed by a smart phone and viewed on a Google Cardboard headset that could cost as little as \$5, potentially even less if bought in bulk. As the technology continues to progress, it is possible that in a few years, VR filming and viewing could become even more affordable.

The biggest advantages of VR training in agriculture are:

1. It is an independent, self-explanatory tool that presents a virtual field or classroom and doesn’t require an expert to teach.
2. It takes the technology to the doorstep of the least literate farmer, especially women who often can’t attend in-person training, especially when it’s in another village.

The VR films can be viewed anywhere and at any time so viewers can see and observe the full season crop growth, insects and best practices in action in just a few minutes. In this respect, VR performs better than in-person, physical training which can show only the few insect species and best practices that are relevant to the crop stage at the time the training was held. VR can expose the user to any field at any time of the crop’s growth.

Three years ago, Mr Kai Hughes, ICAC Executive Director, proposed the idea of VR as a tool for technology transfer in cotton production. As a scientist, I was very excited by its potential. We quickly developed technical proposals and approached a few prospective donors for support.

We were fortunate to receive approval for the project from GIZ in 2019. The GIZ team was equally excited about the potential and provided excellent support for development of the VR modules on integrated pest management (IPM) and best practices for high yields. Although Covid played spoilsport, the One Hand Clapping team that handles the drones and filming — together with the ICAC team and supporting institutions such as BioRe, Khargone; SIMA, Coimbatore; Lam farm ANGRAU, Guntur and RARS Warangal, PJTSAU, Hyderabad — braved lockdowns and restrictions to deliver a pair of VR films in English and French in 2022. The films were premiered by the GIZ team in Cameroon in March and received a tremendously positive response from agricultural extension workers.

I would like to thank Dr Mahesh Upender, Post Doctoral Fellow, for the excellent insect images that have been used in this edition.

Without question, the launch of VR for cotton training opens a new chapter in digital knowledge transfer for the least literate farmer. The ICAC gratefully acknowledges the financial and technical support from the GIZ and all supporting institutions that are equal partners in this landmark achievement.

– Keshav Kranthi