**Detection and Identification of Living Modified Organisms in Zimbabwe**

The Government of Zimbabwe has two laboratories which are involved in the screening of biologically active material for the presence of LMOs/GMOs. These are the National Biotechnology Authority‘s GMO Testing Laboratory and the Tobacco Research Board’s (TRB) Molecular Biology Services Division. The following outlines the functions and needs of each laboratory:

**The NBA GMO Testing Laboratory**

The National Biotechnology Authority (NBA) of Zimbabwe received state of the art equipment for GMO testing under the European Union Sanitary and Phytosanitary Project (EU-SPS) project.The project was aimed at improving the NBA’s laboratory competency, efficiency and capacity to that of a standard reference laboratory for GMO testing and regulation of food, feed and seed imports and exports in Zimbabwe. The NBA has been capacitated to do more advanced and more reliable GMO tests using a real time PCR machine.

Prior to receiving equipment under the EU-SPS project, the NBA GMO testing laboratory conducted GMO tests using rapid test strips which despite their rapidity have a low sensitivity. The NBA is now equipped to conduct confirmatory GMO tests using 2 different methods thereby increasing the accuracy and reliability of test results.

The NBA however still requires additional equipment, chemicals and consumables for it to be able to use its newly acquired Real Time PCR machine and there is also a need for laboratory officers to participate in training programmes for continuous skills development.

**TRB’s Molecular Biology Services Division**

Molecular methods are premised on polymerase chain reaction (PCR) product detection. Being a national testing centre and an ISO 17025 accredited laboratory, the reliability and reproducibility of methods is critical in this regard as the test results travel the width and breadth of the world, and therefore in keeping with international trends technology change becomes apparent.

The laboratory has the following key functions:

1. Plant and pathogen/pest characterisation using nucleic acid based research
2. Molecular based plant diagnostics both to complement TRB’s Plant health Services Division
3. Molecular based plant breeding technologies
4. The National ISO17025 accredited GMO testing centre for both imports and exports
5. Plant tissue culture and micropropagation – to promote pathogen free seed systems

The laboratory therefore requires an upgrade of equipment to fulfil its objectives and the following are key:-

1. **A low throughput sequencer** to enable it to detect and identify genome changes due to new breeding technologies such as *cis*-genics. The sequencer will also be used for other activities e.g. molecular characterization of microorganisms.
2. **DNA synthesiser** to enable oligonucleotide synthesis
3. **RNA analyser** to enable Transcriptomics studies