

## **Annex 1:DNA fingerprinting workshop: Brief report for SIAC Program Steering Committee**

Bill and Melinda Gates Foundation, Seattle, 4 - 5 August 2014

Convened by Greg Traxler and Mariana Kim from the Foundation, this two-day workshop of 40 participants (see annex 1) had three objectives:

1) Review findings from Diffusion and Impact of Improved Varieties in Africa (DIIVA) study

2) Share insights from four sets of DNA fingerprinting pilots:

- Rice in South Asia (Rice monitoring system, with IRRI)
- Aflatoxin and maize in Kenya and Tanzania (ACIAR)
- Cassava in Ghana, Beans in Zambia, Maize in Uganda (MSU leading, under SIAC program)
- Wheat and maize in Ethiopia (Gates Foundation working with the Ethiopian Central Statistical Agency)

3) Collaborate and engage in scale-up design and next steps, including brainstorming around applications of internal and external uses of DNA technology with agriculture

**Objective 1** was largely met through a lunch-time presentation by Doug Gollin, Arega Alene, Tom Walker and James Stevenson, to a group of around 60 people (40 participants + 20 Foundation staff / visitors). Greg Traxler introduced the DIIVA talk by outlining the Foundation's motivation for funding DIIVA. Varietal adoption is central to how the CGIAR has an impact but data on adoption has been neglected since the late 1990s when Evenson and Gollin last pulled together aggregate adoption estimates for improved varieties. At the time DIIVA was commissioned, the methods proposed were "state of the art", but in the intervening five years, the technology of DNA fingerprinting has come on stream, coinciding and reinforcing an awareness of the uncertainty in the data coming from expert opinion or household survey methods. The audience were very bright, asking the right questions of the panel when it came to discussion – questions about: characterisation and standardisation of data collection; how the same data on lack of varietal turnover can be interpreted in different ways (as a good thing or a bad thing); defining an improved variety, etc.

For **objective 2**, a series of presentations on the individual projects helped with understanding the process and methods used in DNA fingerprinting, even if there were few results to report to date. Those that did have early results, such as the wheat and maize in Ethiopia pilot, showing some worrying findings. 35% of wheat farmers and 29% of maize farmers correctly identified their varieties. 12% of households believed they were growing the wheat variety Kubsu, which is susceptible to stem rust and has been de-listed as a variety in Ethiopia. Actually, the figure is 30%. There are a number of laboratories that can provide this analysis at ever-decreasing unit costs, and the impression is that this has now become a method that can and should be mainstreamed in survey design. If the discrepancies between farmer-reported data and DNA fingerprinting data are similarly large in the pilots that have not yet reported results, then the implication seems to be that DNA fingerprinting is now an essential tool in agricultural survey design.

For **objective 3**, there were useful presentations by Talip Kilic from the LSMS-ISA, from Biratu Yigezu Gutema (CSA) on the constraints inherent in attempting to integrate these approaches in large-scale multi-purpose surveys, and from Steve Rownsley (Dow) on the power and limitations of the analysis. The participants broke into small groups and brainstormed on how further scaling-up of these pilots could be achieved in Ethiopia for wheat, Malawi for cassava, and in other countries, with SPIA looking to play a coordinating role in the next year through John Ilukor (Malawi) and Frederic Kosmowski (Ethiopia) being present in those countries.

**Next steps:** Pilots to continue, wrap up and report. SPIA to talk with Greg about what role SPIA might play in trying to scale-up DNA fingerprinting, on two fronts – within our current SIAC grant and activities; and planning ahead for beyond 2016 for how this might be institutionalised and made part of regular program monitoring within the CGIAR.

## Annex 1 – Participant list

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