

## 14. Climate-smart intensification of West-Africa's cocoa systems

van Asten Piet<sup>1</sup>, Jassogne Laurence<sup>1</sup>, Vaast Philippe<sup>2</sup> Laderach Peter<sup>3</sup>, Schroth Götz<sup>4</sup>, Lundy Mark<sup>3</sup>, Asare Richard<sup>5</sup>, Muilerman Sander<sup>5</sup>, Ruf R.<sup>6</sup>, Snoeck Didier<sup>6</sup>, Koko Louis<sup>7</sup>, Anim-Kwapong Gilbert<sup>8</sup>, Rossing Walter<sup>9</sup>, Gockwoski James<sup>5</sup>, Giller Ken<sup>9</sup>, Six Johan<sup>10</sup>, Vanlauwe Bernard<sup>11</sup>

<sup>1</sup>IITA, Kampala, Uganda

<sup>2</sup>ICRAF, Nairobi, Kenya

<sup>3</sup>CIAT, Cali, Colombia

<sup>4</sup>Rainforest Alliance, Wageningen, the Netherlands

<sup>5</sup>IITA, Accra, Ghana

<sup>6</sup>CIRAD, Montpellier, France

<sup>7</sup>CNRA, Abidjan, Cote d'Ivoire

<sup>8</sup>CRIG, Kumasi, Ghana

<sup>9</sup>WUR, Wageningen, the Netherlands

<sup>10</sup>ETH, Zurich, Switzerland

<sup>11</sup>IITA, Nairobi, Kenya

Global demand for cocoa is increasing by 2-3% annually, particularly due to growth in Asia. About 70% of global supply originates from West-Africa where cocoa is produced by smallholder farmers (<5 ha). Their yields are low (10-30% of potential) and highly variable with limited use of external nutrient inputs. Over the past decades, cocoa supply relied largely on the expansion of the crop into 'fresh' forest. Consequently, cocoa has been a key driver of deforestation. With less than 15% of the original cover in West Africa remaining, the cocoa industry is increasingly concerned about its future supply, particularly now that recent studies revealed that climate change further threatens the current production zones. Climate-smart intensification is required to ensure both smallholder livelihoods and the industry's need.

Over the past decades, many of the cocoa actors have promoted full-sun intensified systems. Whereas these systems have the highest production potential, they do expose farmers to risks of climate variability and reduced sustainability. Fertilizer use is currently limited to areas where fallow land is no longer available and/or where government programs (read subsidies) enhance access to external nutrient inputs.

There is an urgent need for (i) technical recommendations on how to achieve intensified climate-smart cocoa systems and (ii) improved channels of communicating this knowledge to the smallholders.

In this presentation, we give an update on where the key research actors are with respect to climate-smart intensification technologies and approaches. The challenge faced may require enhanced networks and novel platforms in a sector that is traditionally characterized by a high degree of fragmentation.