

Call for Data: Standard yield curve for oil palm

Introduction

The EU [Renewable Energy Directive recast](#) and [Delegated Regulation 2019/807](#) gives the possibility to certify biomass feedstocks as low indirect land use change (ILUC) risk by producing additional biomass above a business as usual scenario (i.e. by increasing yields). To do this, a farmer or plantation owner needs to determine a “dynamic yield baseline”, which is the expected yield that would have been achieved in the absence of a yield increase measure.

While for annual crops a dynamic yield baseline is more straightforward, for a perennial crop such as oil palm, this is more complex, due to the different yields that can be expected depending on the age of the trees. The methodology to determine the dynamic yield baseline combines the existing yield from the plantation as the starting point, with the shape of a standard average yield curve for oil palm to determine what the yield from that plantation would be in the absence of a yield increase measure.

We are **seeking data on representative oil palm yield curves** from agricultural ministries, research institutes, literature, and other stakeholders. This data is needed to develop an “average” oil palm yield curve that can be used in the methodology to certify biomass from oil palm plantations included in the draft [Implementing Act](#)¹ on “rules to verify sustainability and greenhouse gas emissions saving criteria and low indirect land-use change-risk criteria”. Note that the most important aspect for the methodology is the **shape** of the average yield curve, rather than the magnitude of the yield.

Draft Average Yield Curve

A draft average yield curve has been developed based on two sources from literature, as shown in **Figure 1** and **Table 1**. The determination of a dynamic yield baseline was tested in two low ILUC pilots on oil palm plantations, one in Malaysia and the other in Colombia.

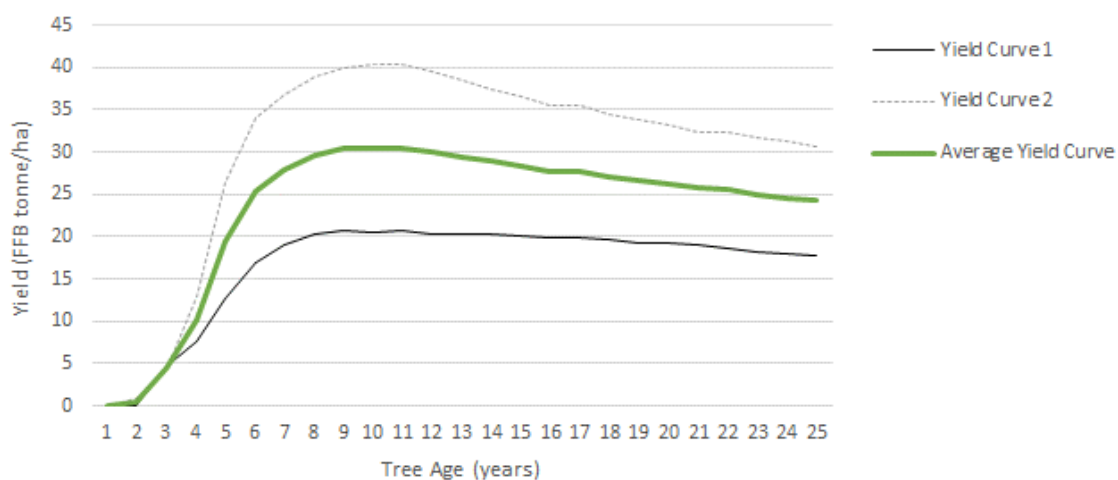


Figure 1. Yield curve of oil palm by tree age

¹ Draft Implementing Act, Annex VIII, Part C, page 26

Table 1. Yield and year-to-year growth rate by age of oil palm trees ²

Age oil palm trees	Yield Curve 1	Yield Curve 2	Average Growth Curve	Annual Growth Rate Curve 1	Annual Growth Rate Curve 2	Difference Growth Rate Curve 1+2
years	tonne FBB/ha	tonne FBB/ha	tonne FBB/ha	%	%	%
1	0.00	0.00	0.00	-		
2	0.00	0.92	0.46	-		
3	4.69	4.31	4.50	-		
4	7.64	12.88	10.26	62.9%	366.3%	135.9%
5	12.75	26.35	19.55	66.9%	104.6%	37.7%
6	16.82	34.02	25.42	31.9%	29.1%	2.8%
7	19.08	36.85	27.96	13.4%	8.3%	5.1%
8	20.30	38.78	29.54	6.4%	5.2%	1.1%
9	20.75	40.03	30.39	2.2%	3.2%	1.0%
10	20.60	40.44	30.52	-0.7%	1.0%	1.8%
11	20.68	40.30	30.49	0.4%	-0.3%	0.7%
12	20.37	39.47	29.92	-1.5%	-2.1%	0.6%
13	20.39	38.51	29.45	0.1%	-2.4%	2.5%
14	20.24	37.47	28.86	-0.7%	-2.7%	2.0%
15	20.00	36.50	28.25	-1.2%	-2.6%	1.4%
16	19.93	35.60	27.77	-0.4%	-2.5%	2.1%
17	19.78	35.50	27.64	-0.8%	-0.3%	0.5%
18	19.71	34.50	27.10	-0.4%	-2.8%	2.5%
19	19.30	33.81	26.55	-2.1%	-2.0%	0.1%
20	19.23	33.12	26.17	-0.4%	-2.0%	1.7%
21	19.06	32.36	25.71	-0.9%	-2.3%	1.4%
22	18.66	32.36	25.51	-2.1%	0.0%	2.1%
23	18.16	31.60	24.88	-2.7%	-2.3%	0.3%
24	18.01	31.18	24.60	-0.8%	-1.3%	0.5%
25	17.85	30.56	24.21	-0.9%	-2.0%	1.1%

Call for Data

We are now reaching out to stakeholders to **improve** the draft average yield curve and make it **more robust** by gathering data on representative yield curves from a greater number of sources and from several geographies. Therefore, we are opening this **call for data** on **oil palm yield by age of trees**. Data shared will be used to build an **average yield curve** that can be applied to different plantations. If desired, any data shared can be anonymised.

We invite you to send any useful resources or feedback to ILUCpilots@guidehouse.com by **31 August 2021**.

For more information on the project, please visit <https://iluc.guidehouse.com/lot-2>.

² Curve 1: Khai Loong Chong, Kasturi Devi Kanniah, Christine Pohl & Kian Pang Tan (2017) A review of remote sensing applications for oil palm studies, *Geo-spatial Information Science*, 20:2, 184-200, DOI: 10.1080/10095020.2017.1337317

Curve 2: Euler, M., Hoffmann, M. P., Fathoni, Z., & Schwarze, S. (2016). Exploring yield gaps in smallholder oil palm production systems in eastern Sumatra, Indonesia. *Agricultural Systems*, 146, 111-119.