

Indoor Air Quality: Using Data to Implement Cleaner Air Solutions

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Sensor Data

Report Type

Temperature

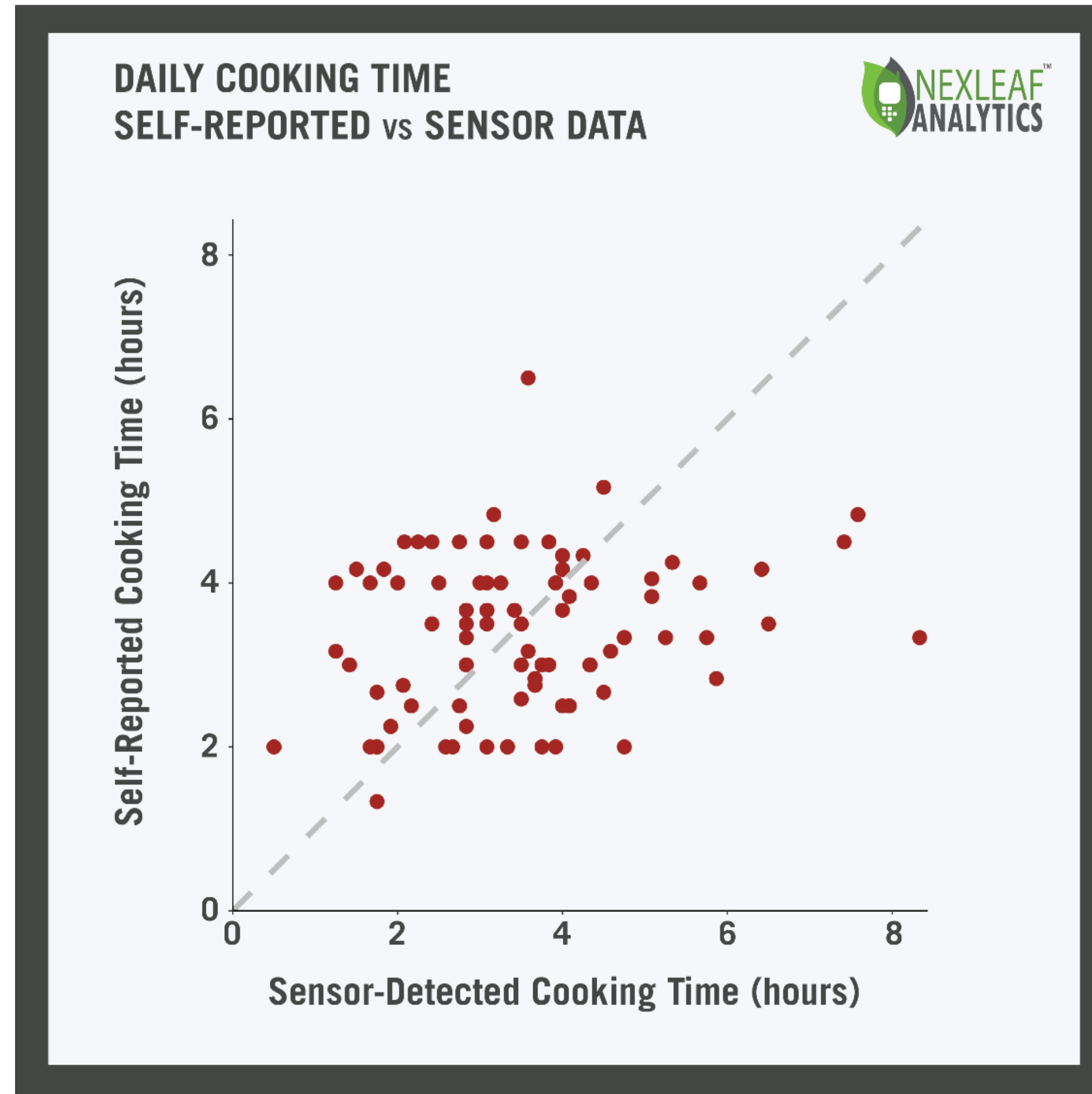
- Jan
- Feb
- Mar
- Apr
- May
- Jun
- Jul
- Aug
- Sep
- Oct
- Nov
- Dec

		Temperature Grid																														
		01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Household 1	ICS	2	1	3	2	2	1	1	1	1	2	1	7	5	1	4	1	4	4	2	2	5	3	5	2	3	4	4	2	2	2	
Household 2	TCS							1	1																							
Household 2	ICS	2	1	1	1				1	2	2	1	2	3	2	3	2	2	2	2	2	2	1	2	2	2	2	2	2	2		
Household 3	TCS																															
Household 3	ICS		1	1	2	3	6	3	4	2	2		1		1	4	1	4	5	3	3	7	4	6	3	3	4	5	3	2	2	
Household 4	TCS																															
Household 4	ICS	2	2	1	2	2	2	1	1	1	3	2	1	2	2	2	1		2	2	2	2	2	2	1	1	3	2	2	2	1	2

Cooking Display Legend

- X Cooking, Events = X
- No Data
- Possible Cooking
- Possible Sensor Failure
- Data, No Cooking

Need for Objective Usage Data



Monitoring Data + Survey Data

- Which of these challenges impact adoption?

What challenges did you face in using this stove?

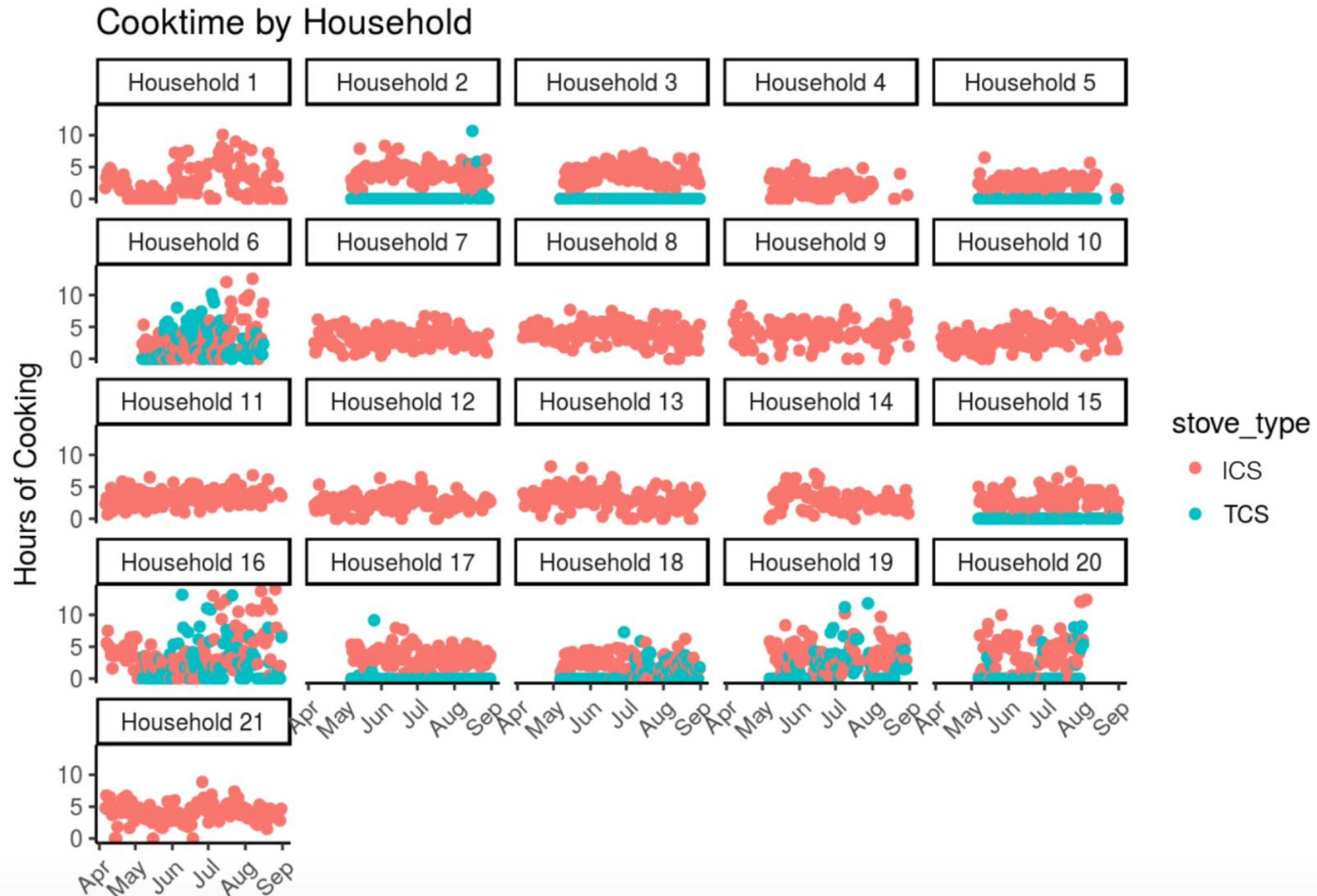
answer	n	mean_cooking
Battery not worked/ damaged	1	2.11
Blockage of inner chamber holes and air does not flow properly, battery not worked	1	1.04
chopping wood	4	1.94
No problem	1	2.00
sometimes fan is not working due to the batter connector got loosed	1	2.59

Combining Survey Data with Monitoring Data Can Point to Potential Design Improvements

same person

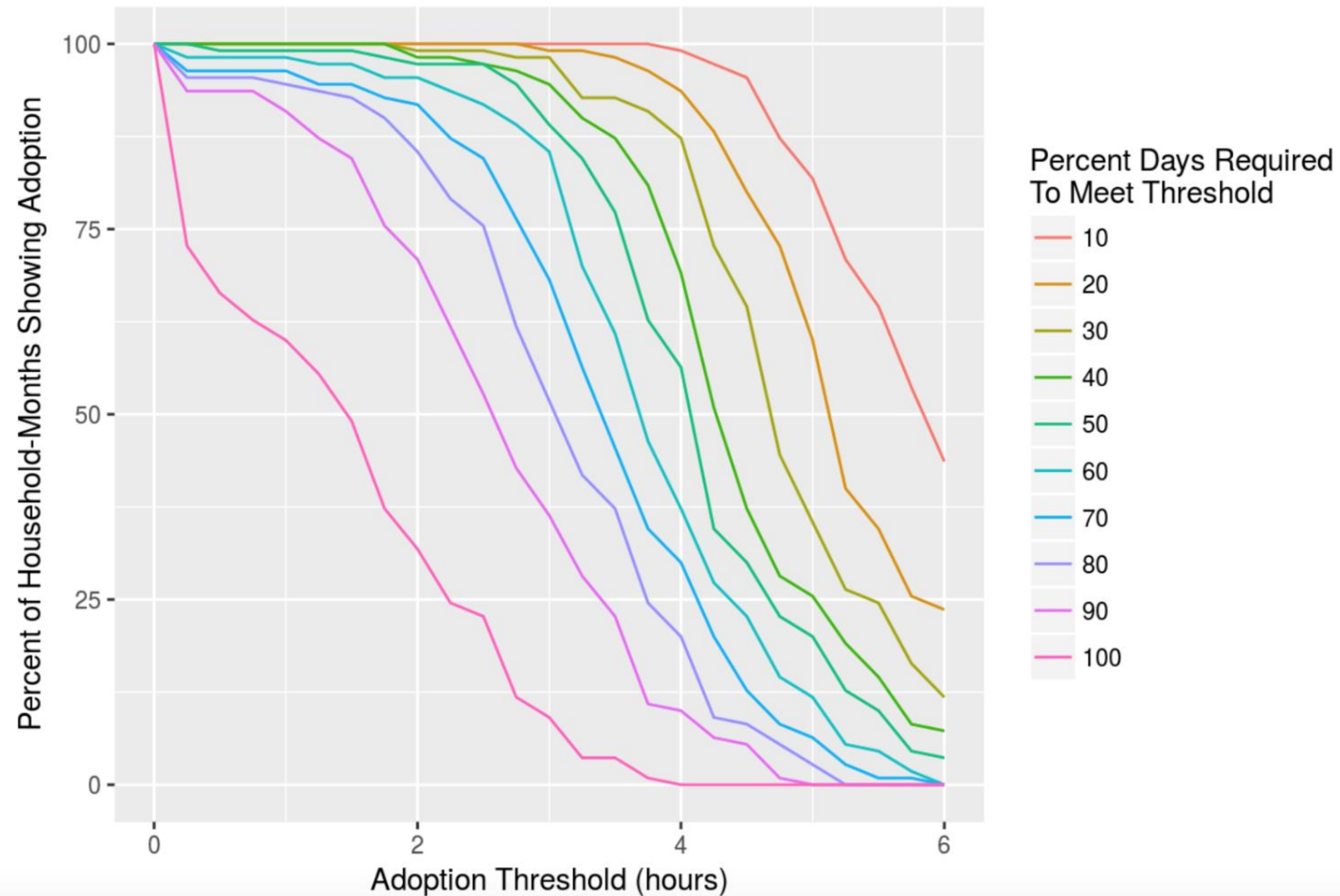
answer	n	mean_cooking
ICS	6	2.14
Mud stove	1	0.66
This ICS is good for us, very easy to cook in this stove	1	2.00
Dislike: Top loading is difficult		
answer	n	mean_cooking
No	7	2.12
Yes, my mother could not able to use this stove	1	0.66

Adoption Looks Pretty Variable!

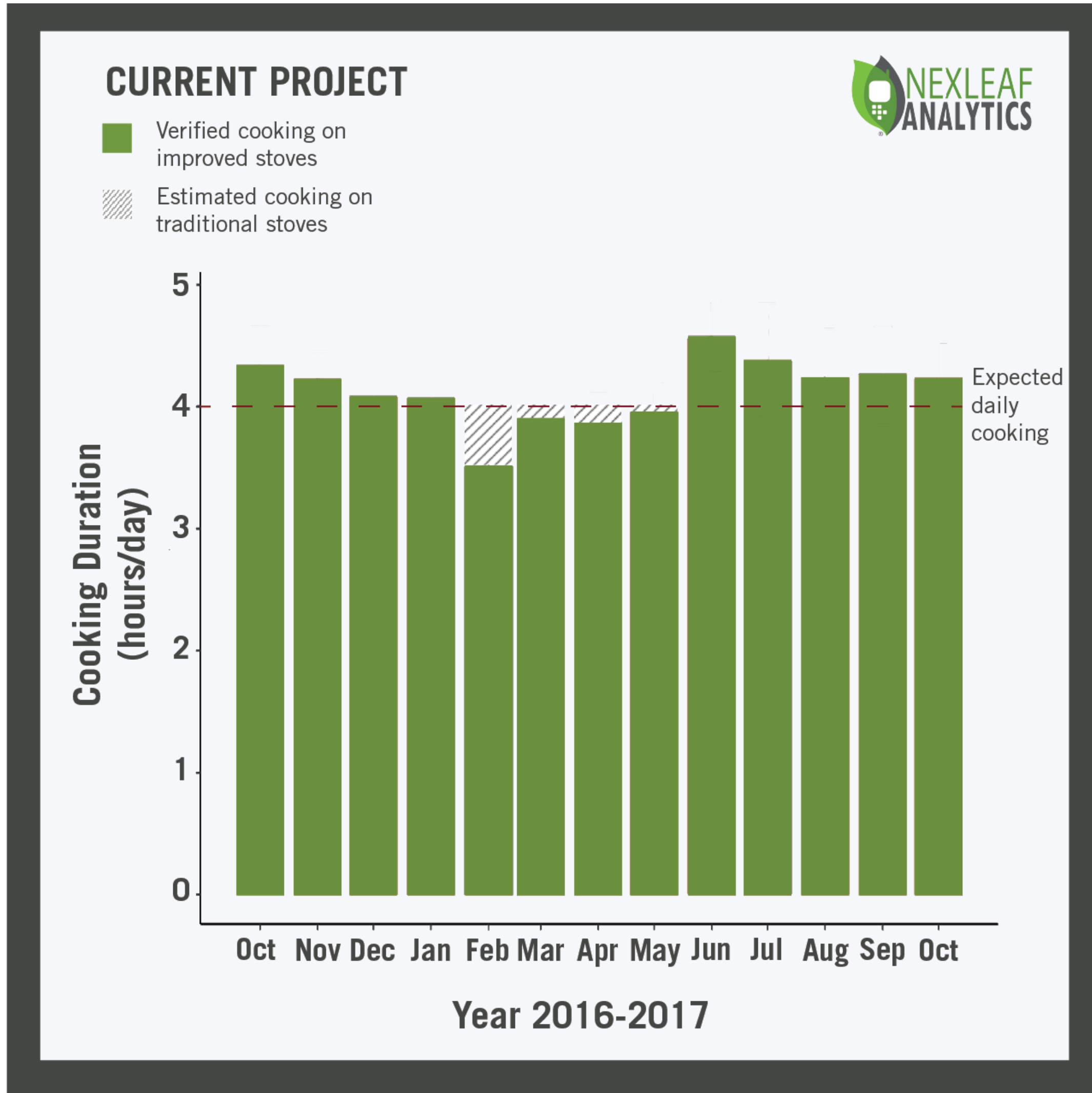
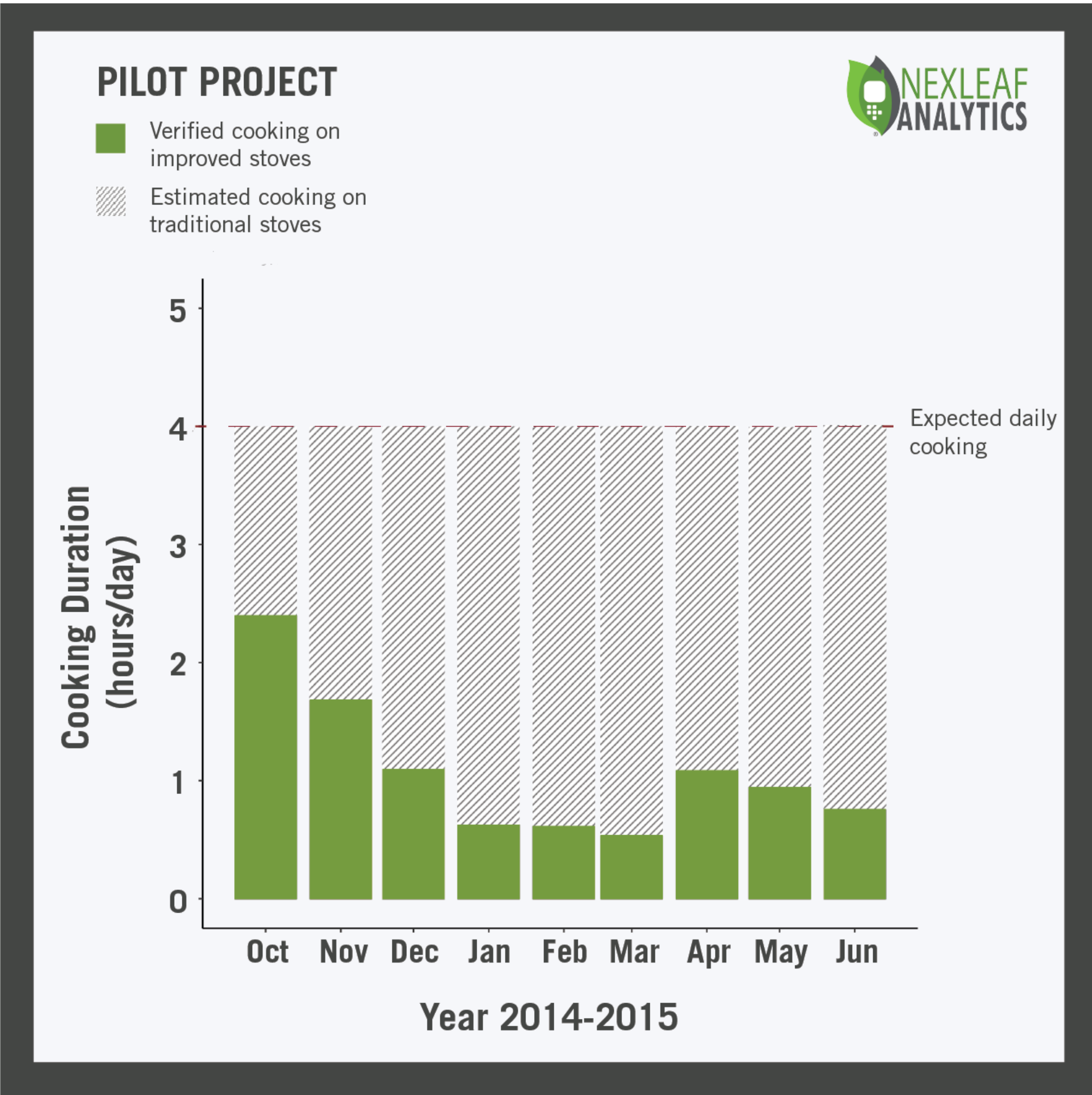


Statistical Adoption Definitions

Effect of Threshold on Percent Adoption for Household-Months



Sustained Usage = Impact



StoveTrace Impact

876 households


\$6954 USD earned by women

586.9 metric tons CO₂e mitigated

Thank you!

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Adoption Does NOT Mean Cooking Every Day

household	Mean Hrs	Max Hrs	Median Hrs	SD (Hrs)	% Days with 0 Hrs
Household 1	5.19	10.67	5.20	1.69	1.58
Household 2	3.00	8.70	2.83	1.69	5.62
Household 3	4.81	11.87	4.67	1.66	0.94
Household 4	3.81	11.60	3.75	1.47	0.91
Household 5	3.79	7.83	3.83	1.48	1.85
Household 6	3.50	13.67	3.50	1.76	6.27
Household 7	4.43	11.70	4.33	1.66	1.23
Household 8	3.37	7.88	3.38	1.66	8.61
Household 9	4.46	8.33	4.33	1.21	0.30
Household 10	4.68	9.22	4.55	1.54	0.30

Comparing Regionally

Village	Mean Cooking (hrs)	Std. Dev.	Mean % TCS Cooking
Village 1	3.26	0.65	14.02
Village 2	2.30	0.60	5.87
Village 3	4.10	0.71	0.42
Village 4	3.04	0.83	7.64
Village 5	3.53	1.00	7.12

Cooktime Can Be Extremely High



2017-06-09 +0530 IST - 2017-06-10 +0530 IST
Total cooking: 9.97 hr, Total Fuel: 4.59 kg, Total Events: 4
Duration: 146 min | Fuel: 0.95 kg (Start: 04:18)
Duration: 142 min | Fuel: 1.21 kg (Start: 11:34)
Duration: 163 min | Fuel: 1.34 kg (Start: 14:35)
Duration: 147 min | Fuel: 1.09 kg (Start: 18:38)

