



TOWARDS IMPROVEMENT OF **RUMINANT** BREEDING  
THROUGH **GENOMIC** AND **EPIGENOMIC** APPROACHES

## WP3 – Workshop

# Meta-analyses at the population level

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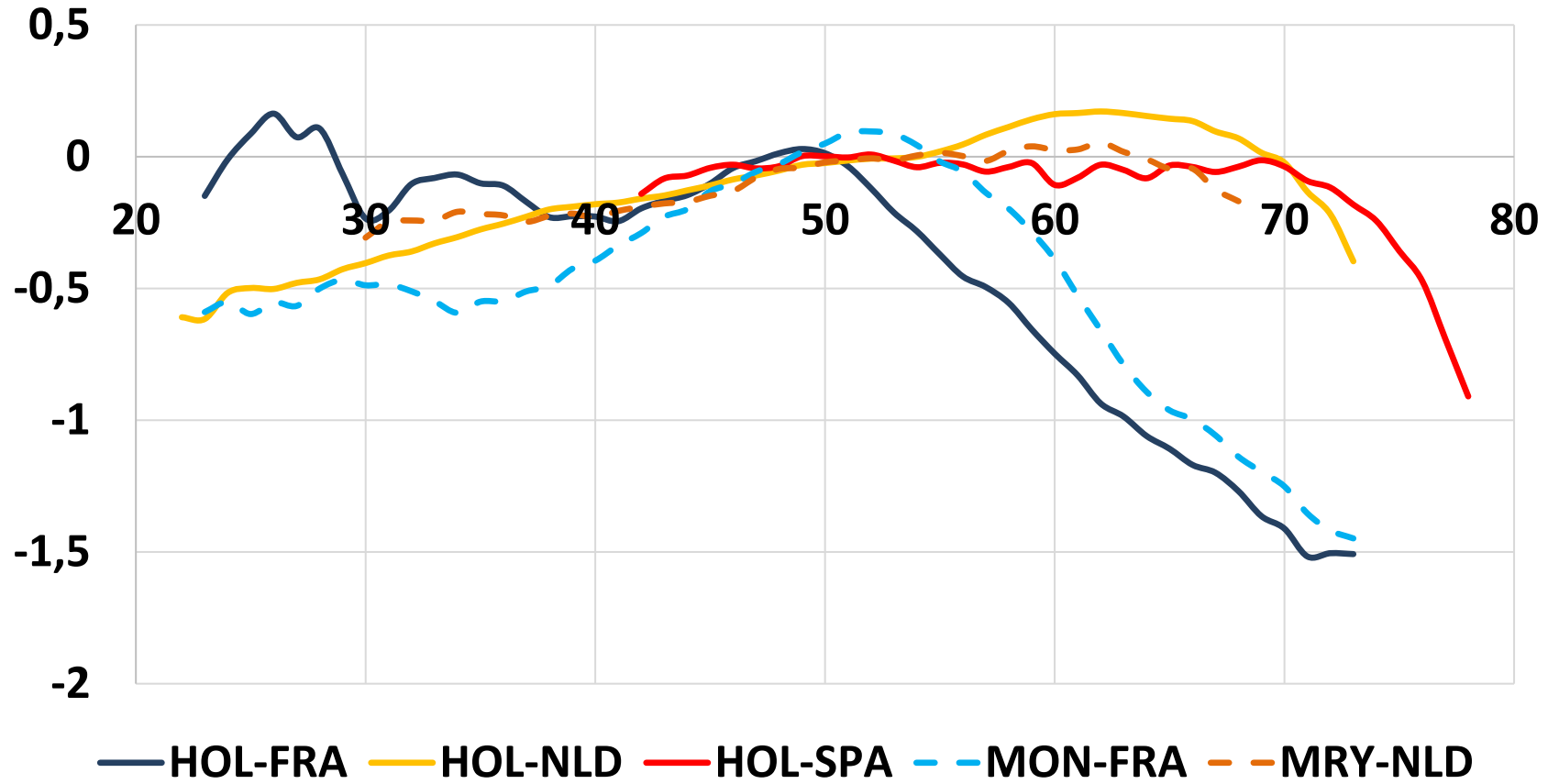


**RUMIGEN 2nd Annual meeting – Toledo, Spain**

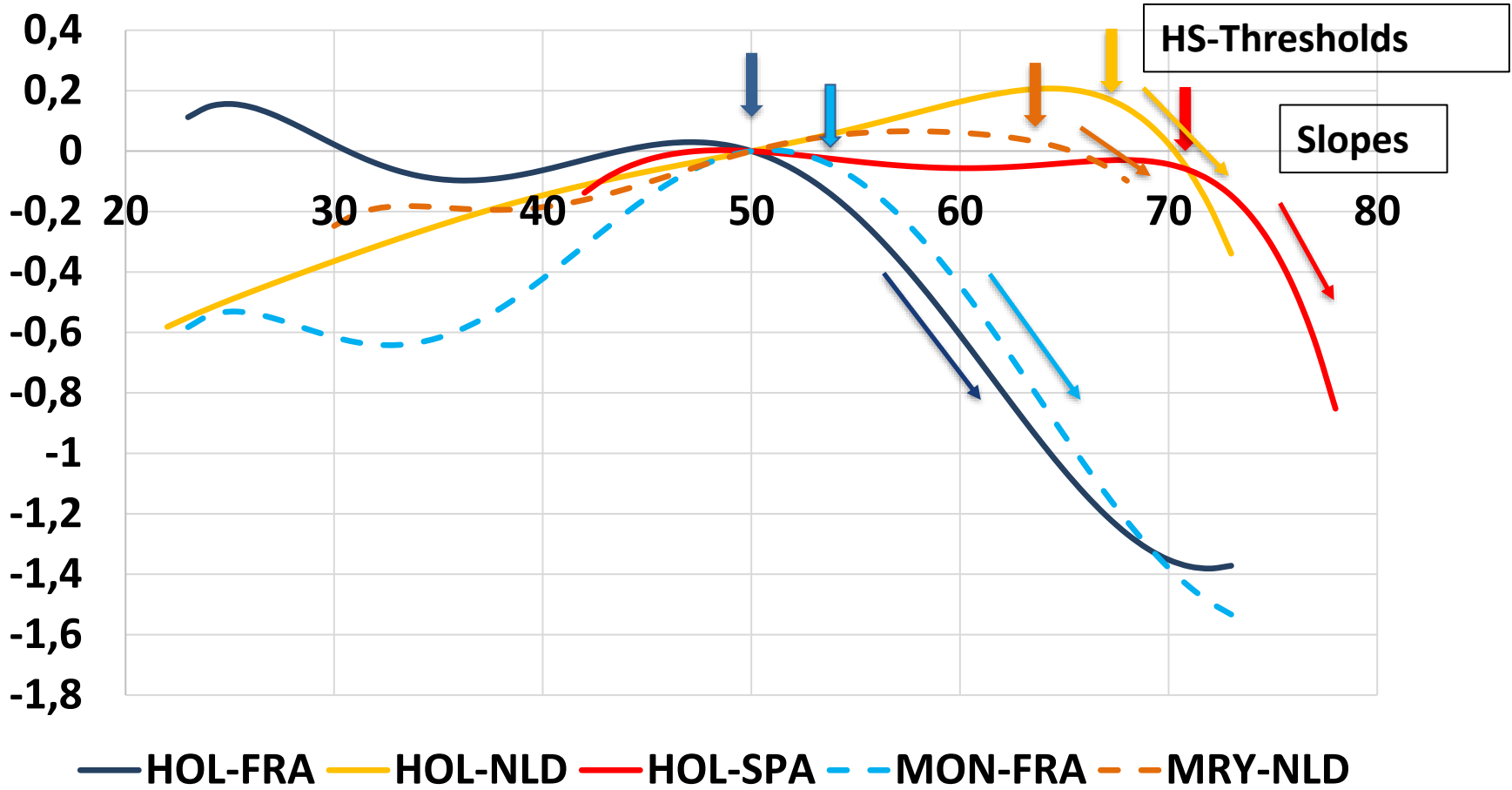
*22-23 May 2023*



### Milk yield-Rolling 5 days



### Milk yield-cubic Polynomial



## RUMIGEN WP3-HS thresholds and slopes of decay - Production

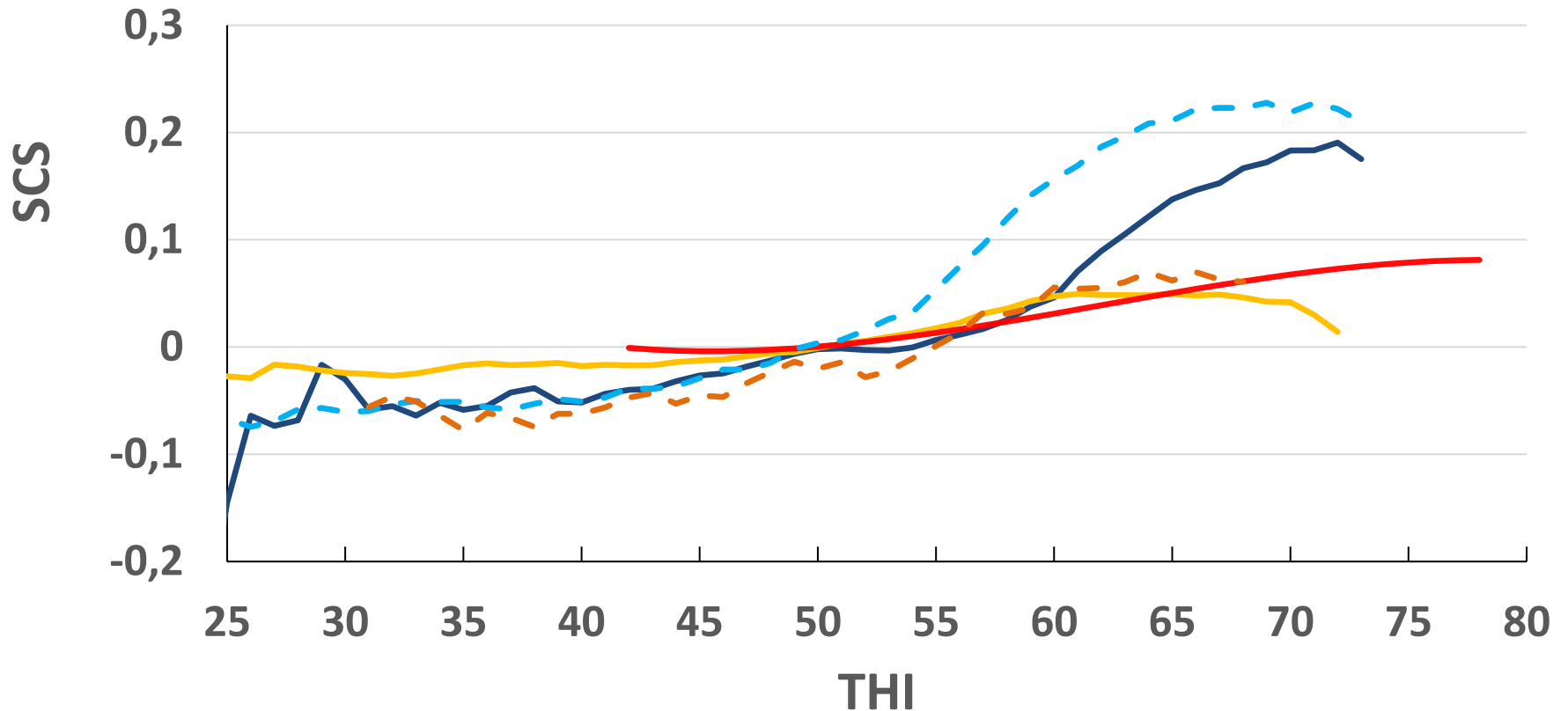
		HOL-FRA	HOL-NLD	HOL-SPA	MON-FRA	MRY-NLD
milk	Thr1	52	49	66	39	72
	Slp1	-79,61	-13,01	-60,55	15,77	-88,35
	Thr2	69	55	72	59	77
	Slp2	9,59	-82,72	-191,09	-25,14	-287,30
fat yield	Thr1	49	39	45	50	70
	Slp1	-5,74	1,25	-2,67	-2,59	-4,73
	Thr2	69	51	72	68	78
	Slp2	0,37	-4,69	-8,82	-7,32	-1,40
Protein yield	Thr1	35	48	66	58	70
	Slp1	-0,55	-1,56	-3,81	-2,03	-5,05
	Thr2	50	55	71	65	76
	Slp2	-4,05	-4,80	-10,06	-3,30	-14,06
fat%	Thr1	42	43	46	47	52
	Slp1	-0,013	-0,012	-0,014	-0,016	-0,008
	Thr2	67	63	64	59	77
	Slp2	0,000	-0,007	-0,004	-0,012	0,021
protein%	Thr1	50	49	48	45	61
	Slp1	-0,008	-0,008	-0,007	-0,005	-0,007
	Thr2	72	57	72	52	75
	Slp2	-0,018	-0,011	-0,014	-0,009	-0,017
scs	Thr1	58	48	44	41	53
	Slp1	0,016	0,014	0,003	0,006	0,004
	Thr2	72	67	68	67	72
	Slp2	-0,035	-0,008	-0,012	-0,022	0,001

# RUMIGEN WP3-Slopes of decay across population- Production

	HOL-FRA	HOL-NLD	HOL-SPA	MON-FRA	MRY-NLD
THI	<b>Milk (g/THI)</b>				
70	-36,38	-68,81	<b>-10,42</b>	-72,94	<b>-85,65</b>
75	42,32	<b>-232,82</b>	-99,66	<b>-15,98</b>	-
	<b>Fat yield (g/THI)</b>				
70	<b>-2,18</b>	-3,49	-3,42	-2,55	<b>-8,43</b>
75	3,21	<b>-10,95</b>	<b>-5,12</b>	-8,71	-
	<b>Protein yield (g/THI)</b>				
70	-3,24	<b>-4,47</b>	<b>-2,85</b>	-4,44	-3,88
75	-3,57	<b>-12,09</b>	-6,61	<b>-3,02</b>	-
	<b>Fat Content (%/THI)</b>				
70	-0,004	-0,003	-0,009	-0,006	-0,024
75	0,009	-0,008	<b>-0,006</b>	<b>-0,010</b>	-
	<b>Protein Content (%/THI)</b>				
70	-0,009	-0,008	-0,008	-0,011	-0,004
75	<b>-0,022</b>	-0,017	<b>-0,011</b>	-0,014	-
	<b>Somatic cell score</b>				
60	0,0076	0,0041	<b>0,0038</b>	<b>0,0166</b>	0,0071
70	<b>0,0137</b>	-0,0071	0,0031	-0,0021	<b>-0,0283</b>
75	-0,0566	0,0000	0,0016	-0,0166	0,0000



# SCS



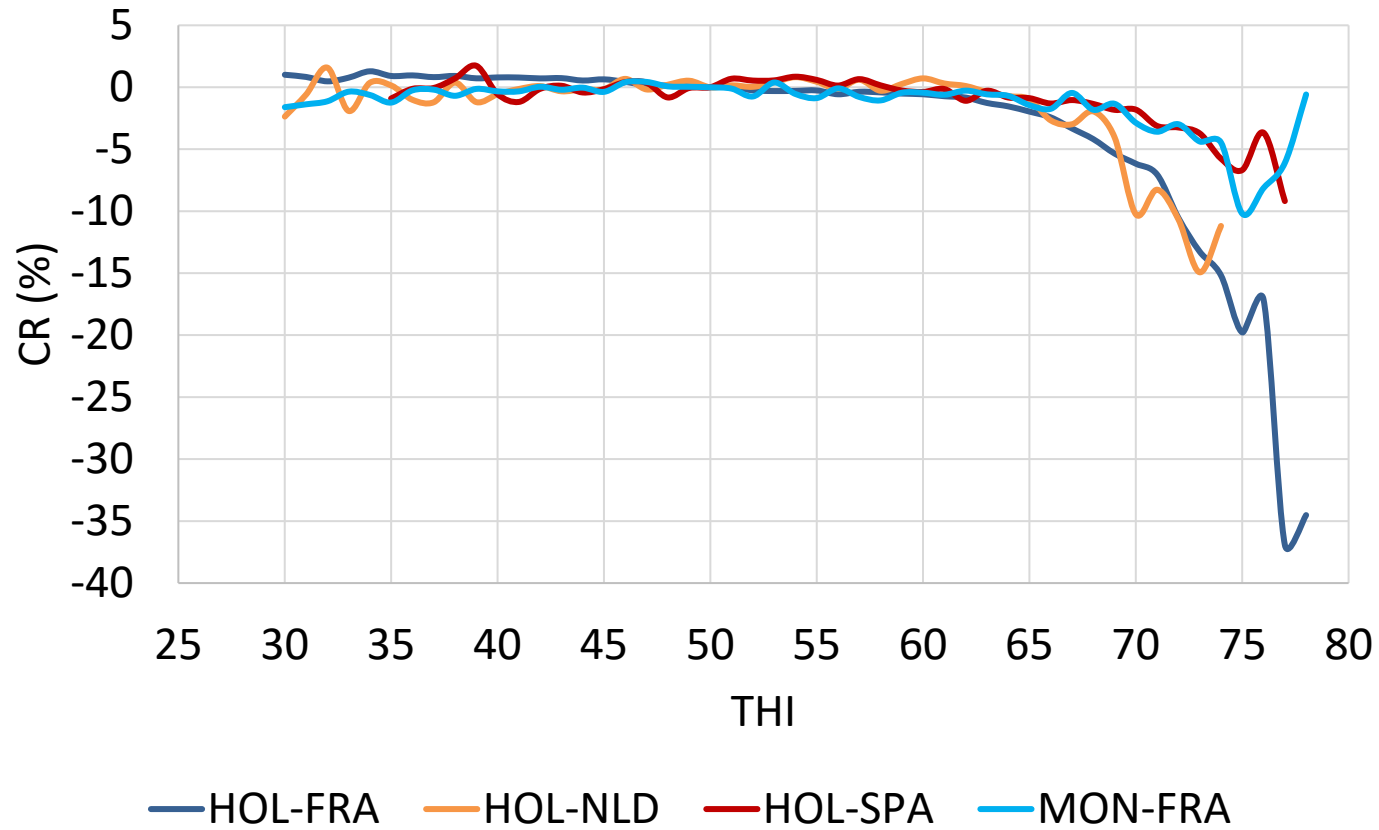
FRA-HOL NLD-HOL SPA-HOL FRA-MON NLD-MRY



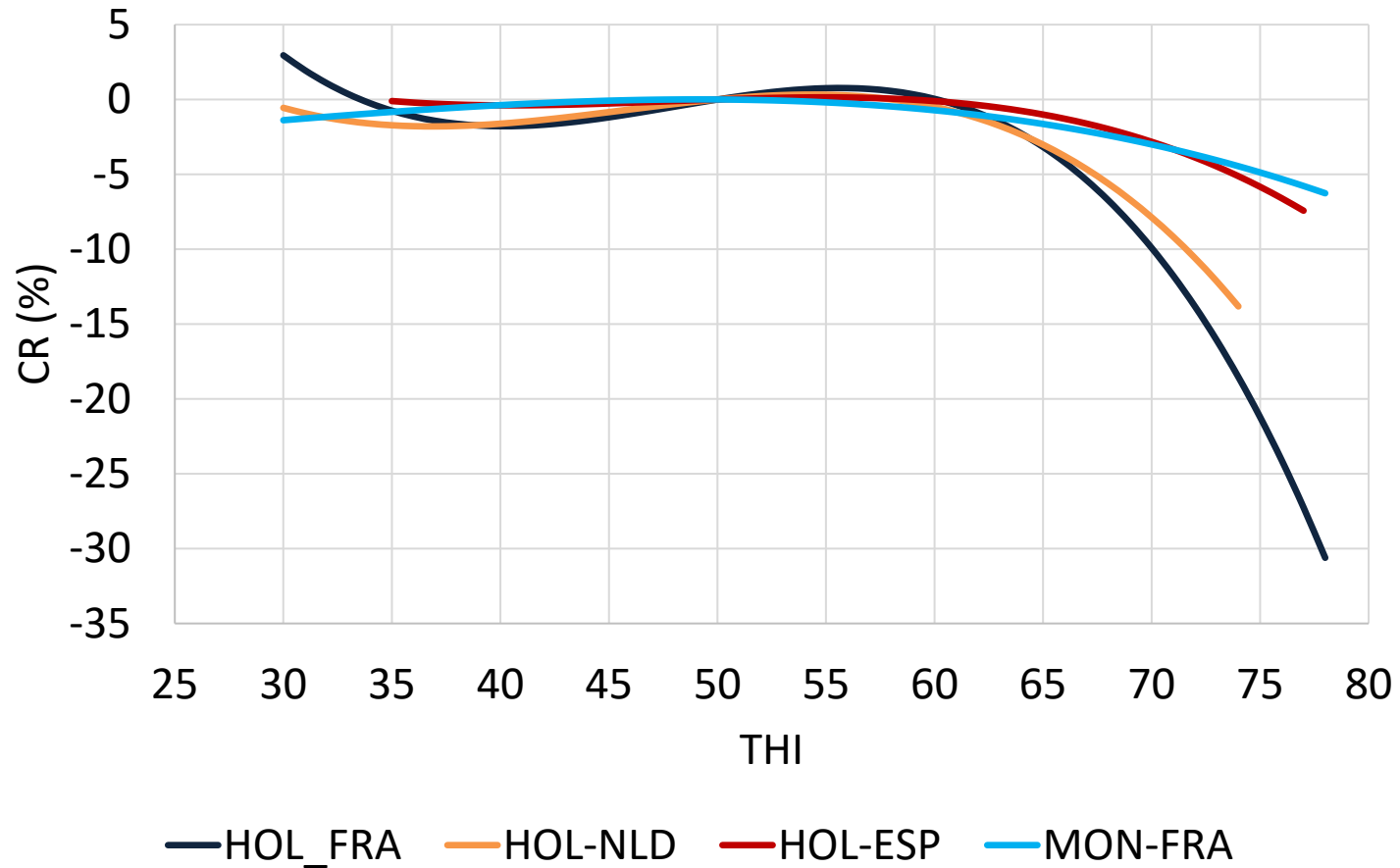
Differences in HS thresholds and subsequent slopes of decay across countries:

- HS threshold largest for SPA and smallest for FRA
- Slopes of decay tended to be largest for HOL-NLD and smallest for HOL-SPA or MON-FRA

Explain by : Acclimation, Production systems,...?







Breed-Country	Threshold (THI units)	Slope (%CR/unit THI)
HOL-FRA	63	-1,29
HOL-NLD	62	-1,04
HOL-SPA	64	-0,51
MON-FRA	61	-0,48

Differences in HS thresholds and subsequent slopes of decay across countries:

- Smaller differences in HS threshold land lower values than for production traits
- Slopes of decay tended to be largest for HOL-FRA and smallest for HOL-SPA

Explain by : Acclimation, Production systems,...?



*Thank you for your attention*

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101000226

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