KITE

Jelen vagyunk a jövőben

Vertical integration of sorghum production

Dr. Kovács István Dezső
director of crop trade department

KITE’s role in the vertical sorghum production

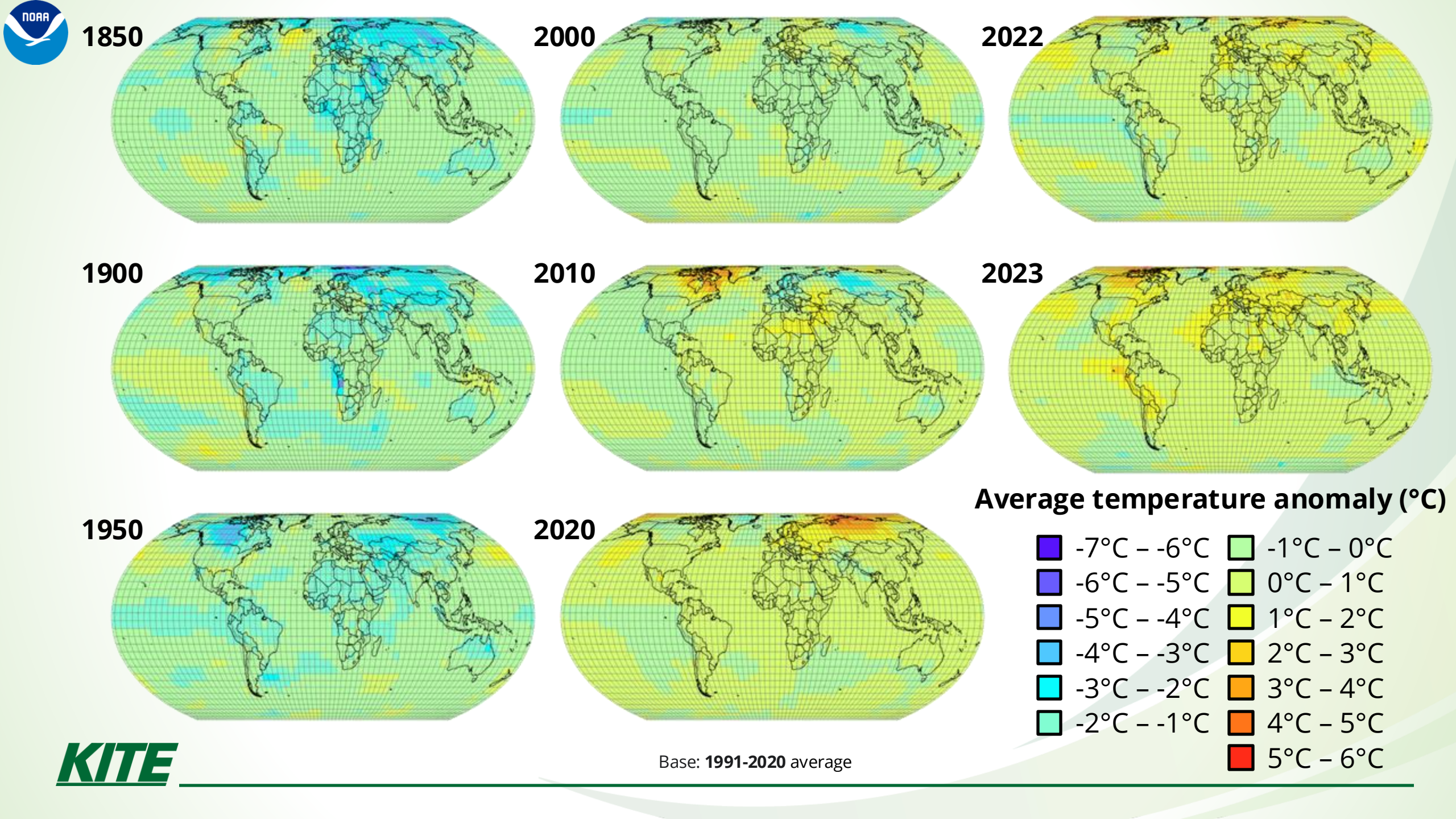
- promotion of the sorghum – proposal to the farmers
- financing the farmers – risk managment
- possibility for pricing during the growing season
- collecting the sorghum
- storage capacity
- financing of the collected sorghum

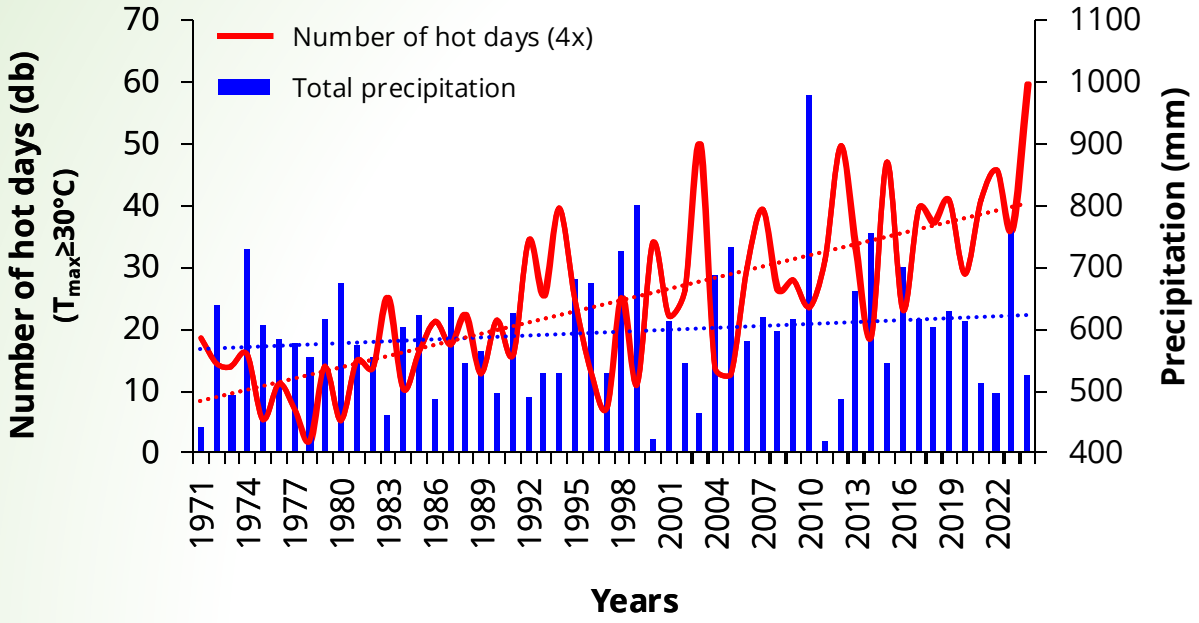
KITE

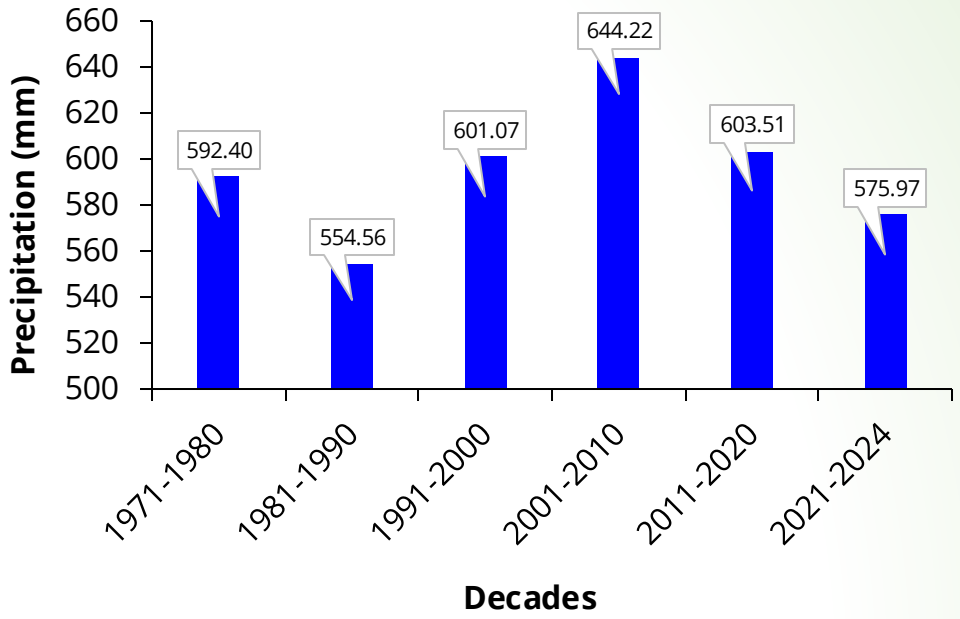
KITE’s role in the vertical sorghum production

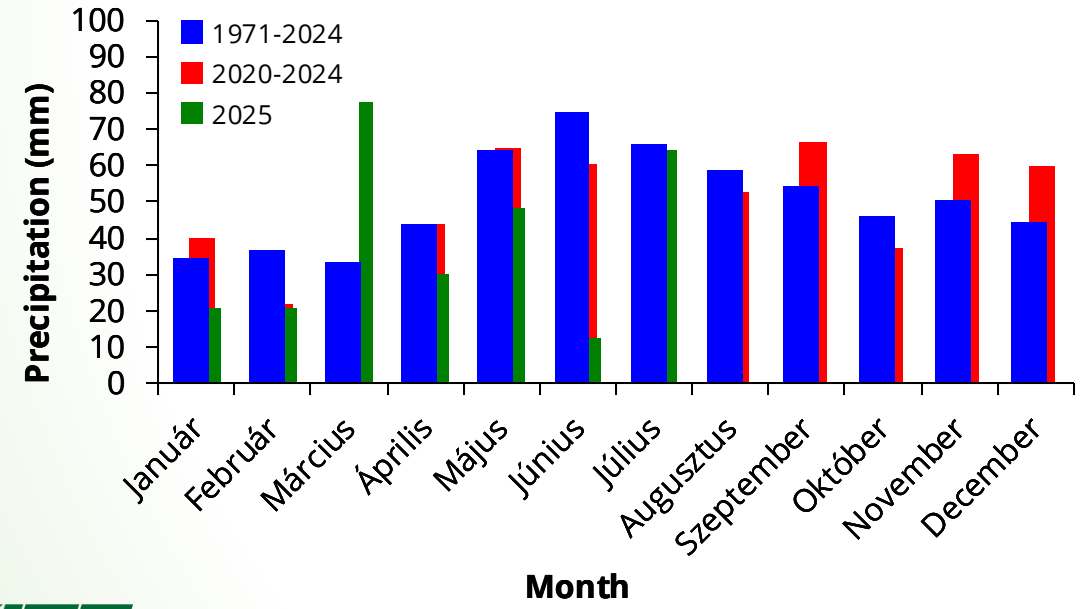
- logistic services and solutions for the feed mixers in Hungary and abroad
- quality requirements (protein, toxin, non-GMO)
- finding new customers (not only in the feed sector)

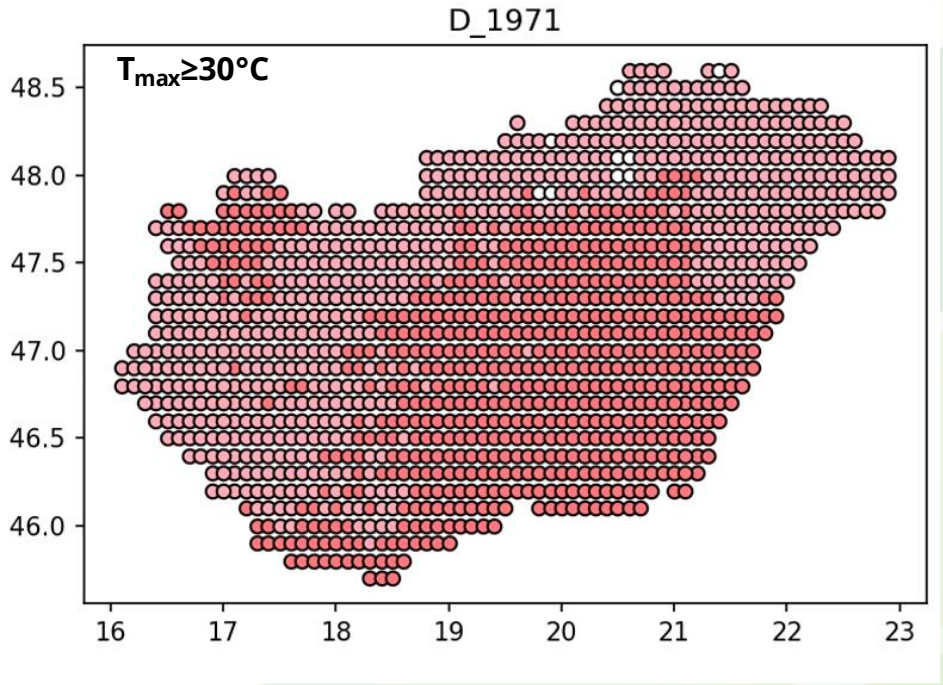
KITE


1850
2000
2022
1900
2010
2023
1950
2020
Average temperature anomaly (°C)
-7°C – -6°C
-6°C – -5°C
-5°C – -4°C
-4°C – -3°C
-3°C – -2°C
-2°C – -1°C
-1°C – 0°C
0°C – 1°C
1°C – 2°C
2°C – 3°C
3°C – 4°C
4°C – 5°C
5°C – 6°C
Base: 1991-2020 average

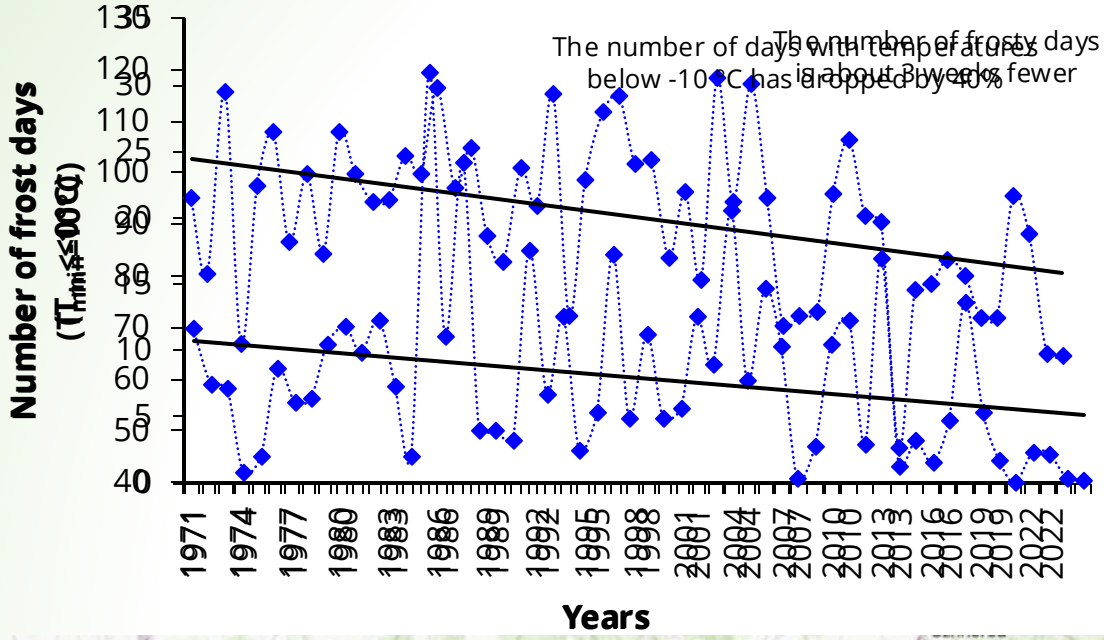

Number of hot days (4x)
Total precipitation
Number of hot days (db)
(T_{max}≥30°C)
Precipitation (mm)
Years

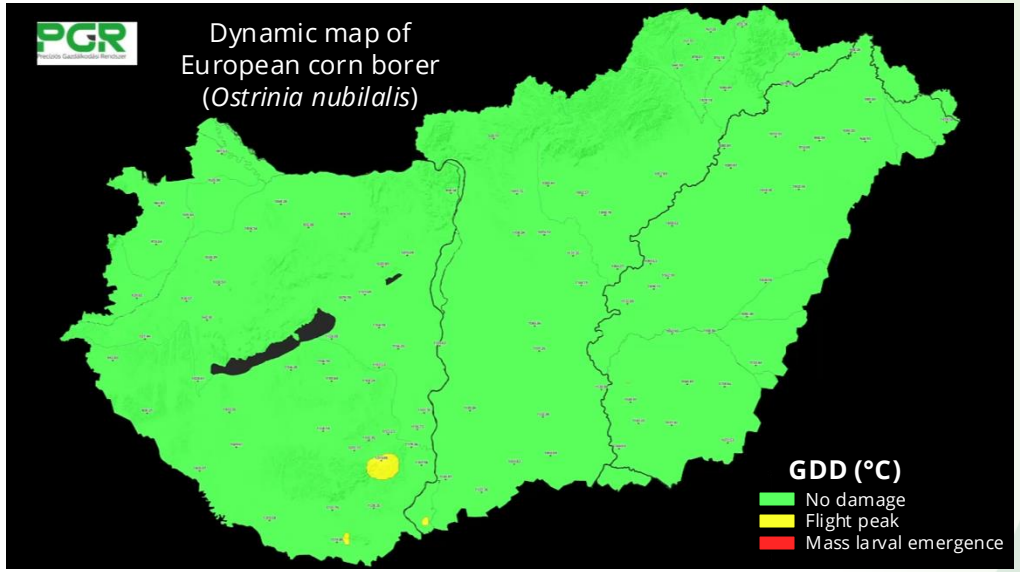

Precipitation (mm)
592.40
554.56
601.07
644.22
603.51
575.97
1971-1980
1981-1990
1991-2000
2001-2010
2011-2020
2021-2024
Decades

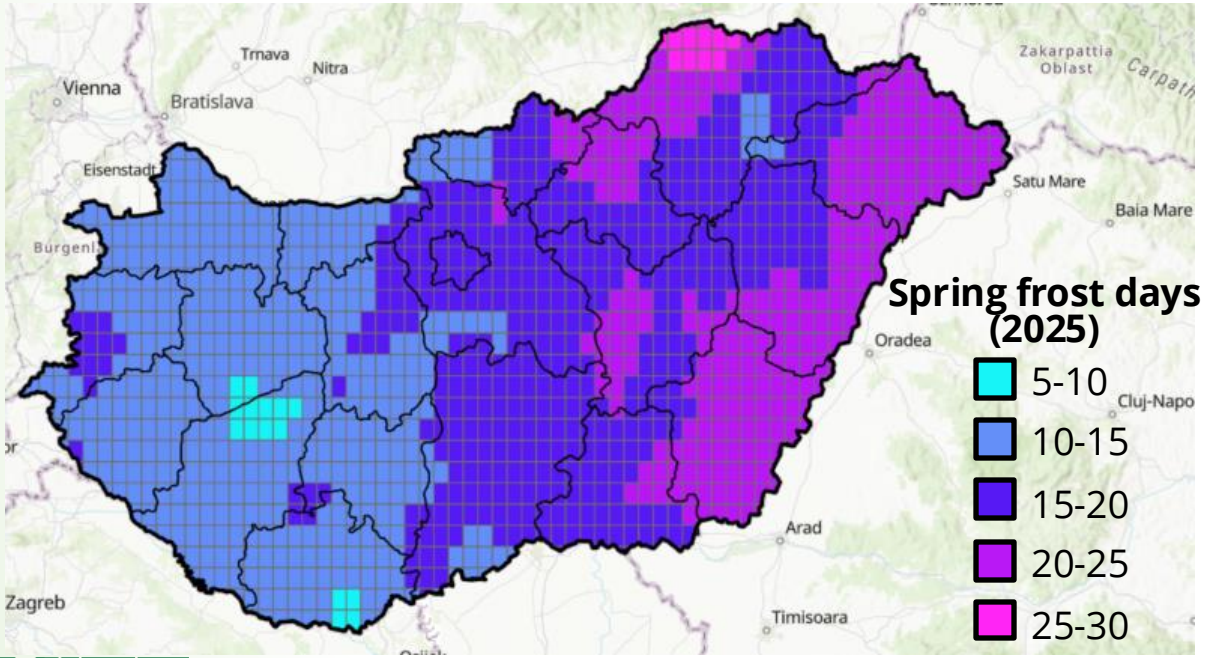

1971-2024
2020-2024
2025
Precipitation (mm)
Január
Február
Március
Április
Május
Június
Július
Augusztus
Szeptember
Október
November
December
Month

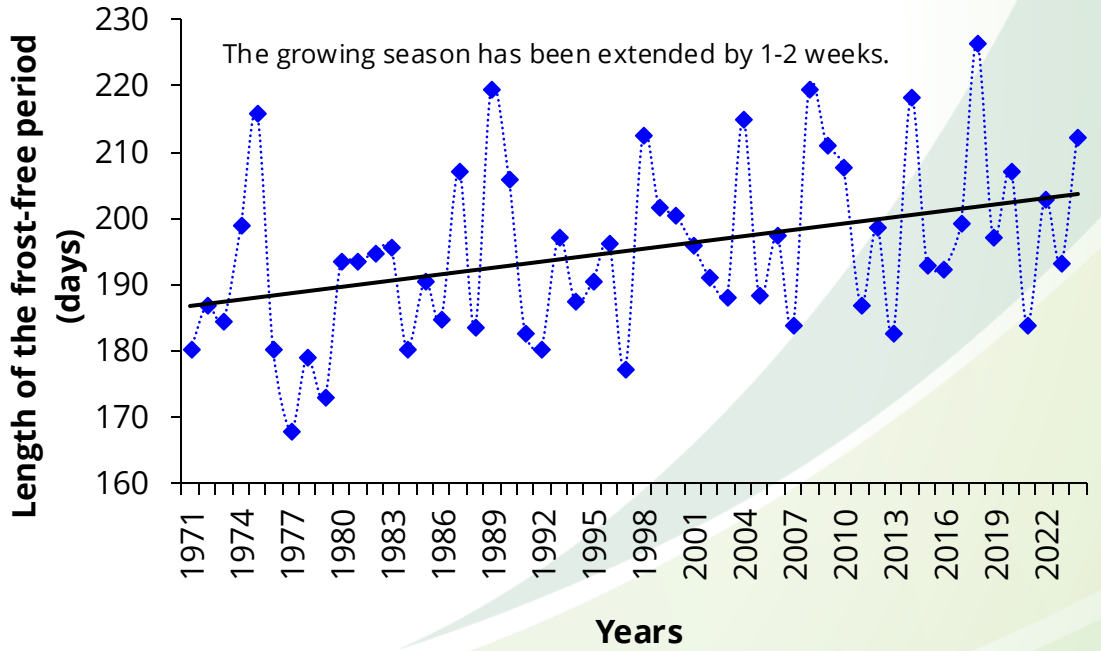

D_1971
T_{max}≥30°C
Days
(T_{max}≥30°C)
0
1-20
21-40
41-50
51-60
61-70
70>

KITE


The number of days with temperatures below -10 °C has dropped by 40%
The number of frosty days is about 3 weeks fewer
Number of frost days
Years

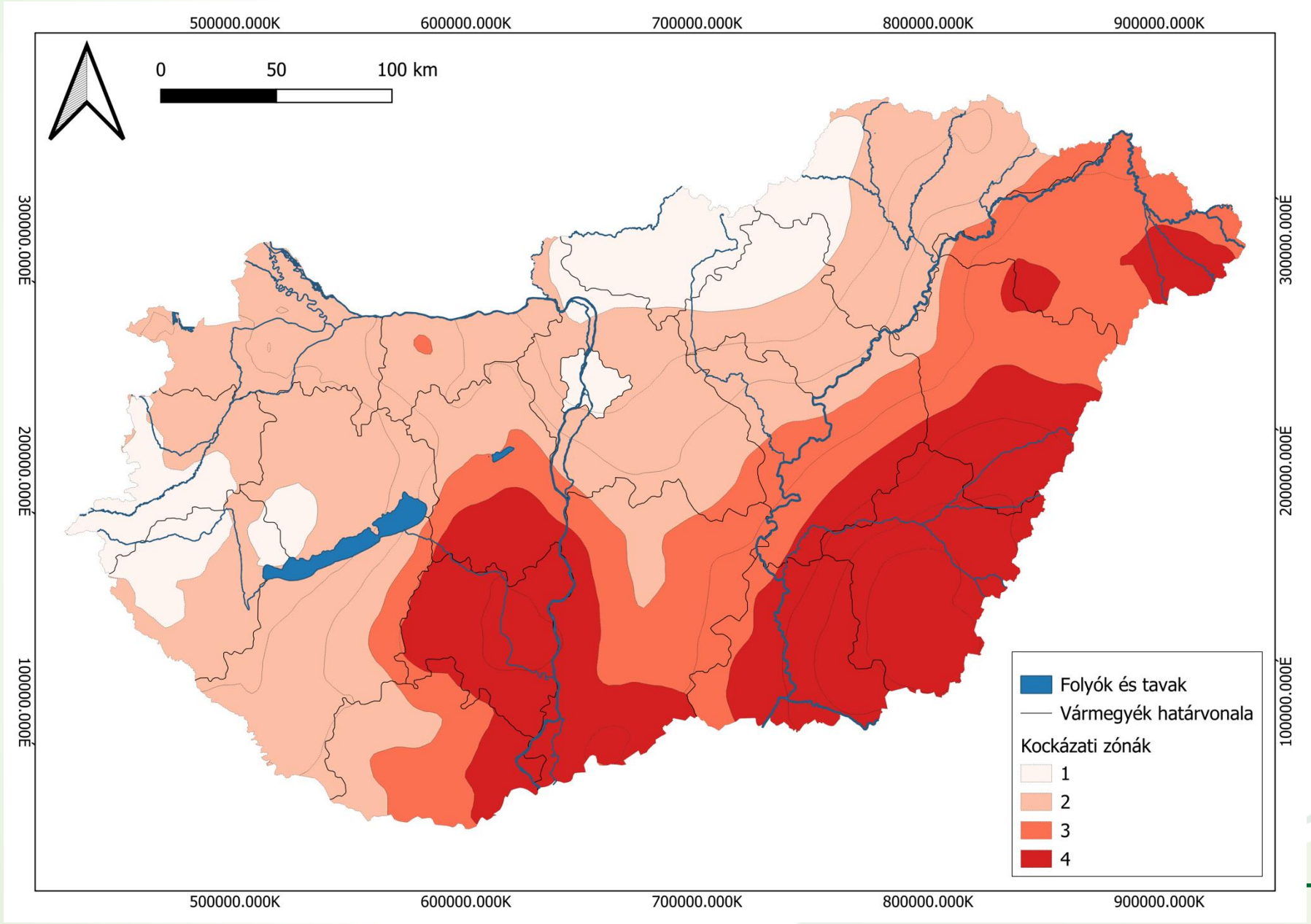

PGR
Dynamic map of European corn borer (Ostrinia nubilalis)
GDD (°C)
No damage
Flight peak
Mass larval emergence


Vienna
Bratislava
Trnava
Nitra
Eisenstadt
Zakarpattia Oblast
Satu Mare
Baia Mare
Oradea
Cluj-Napo
Arad
Timisoara
Zagreb
Spring frost days (2025)
5-10
10-15
15-20
20-25
25-30

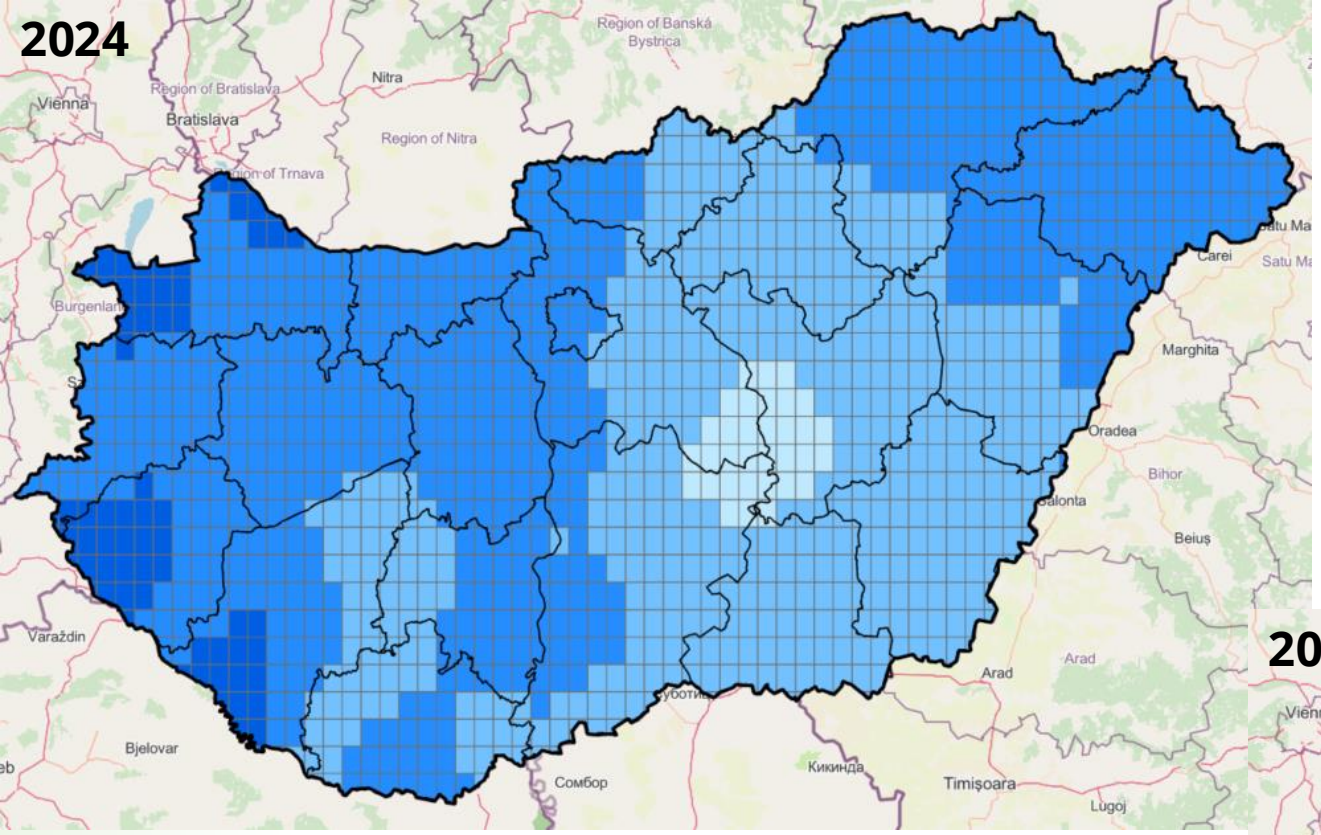

The growing season has been extended by 1-2 weeks.
Length of the frost-free period (days)
Years

KITE

European corn borer risk zones



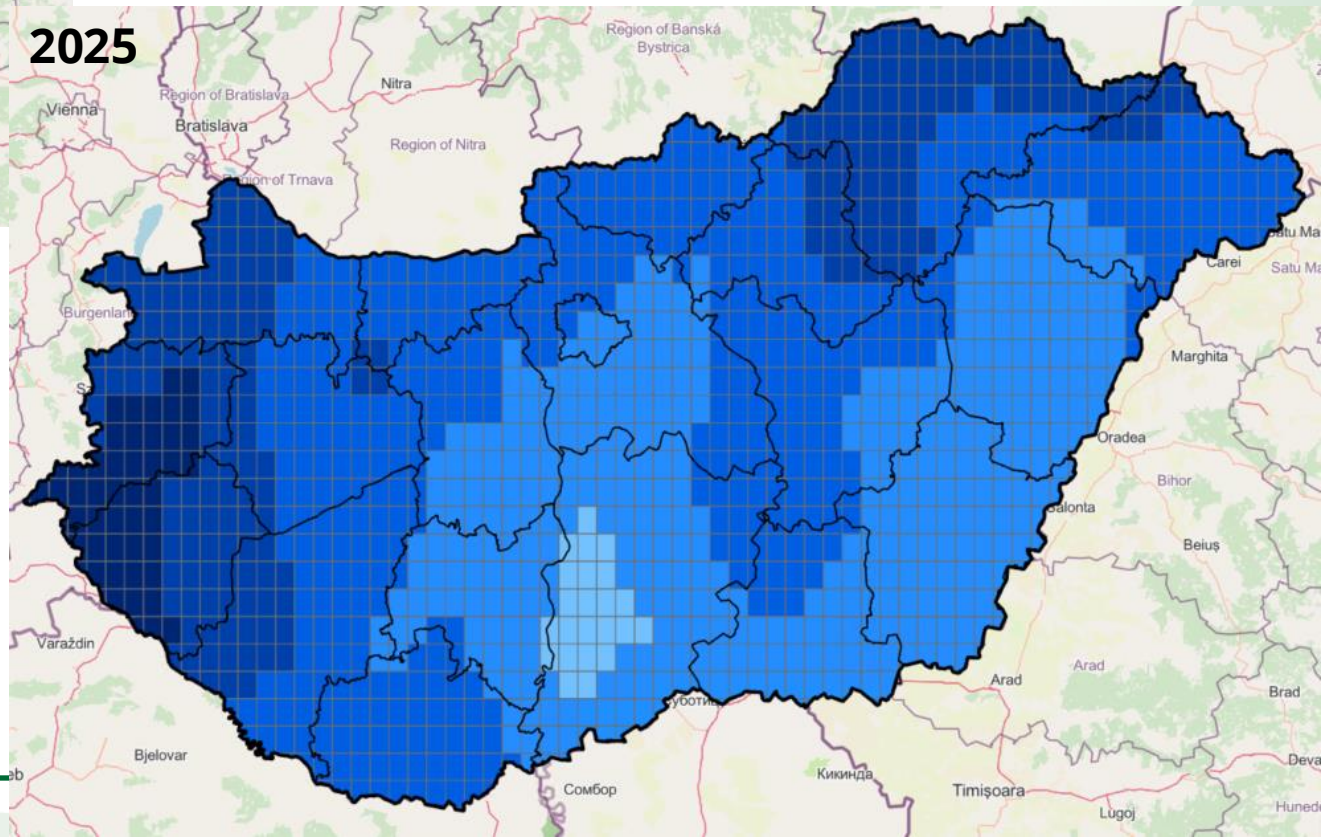
2024



Precipitation (mm)
04/15 – 07/31

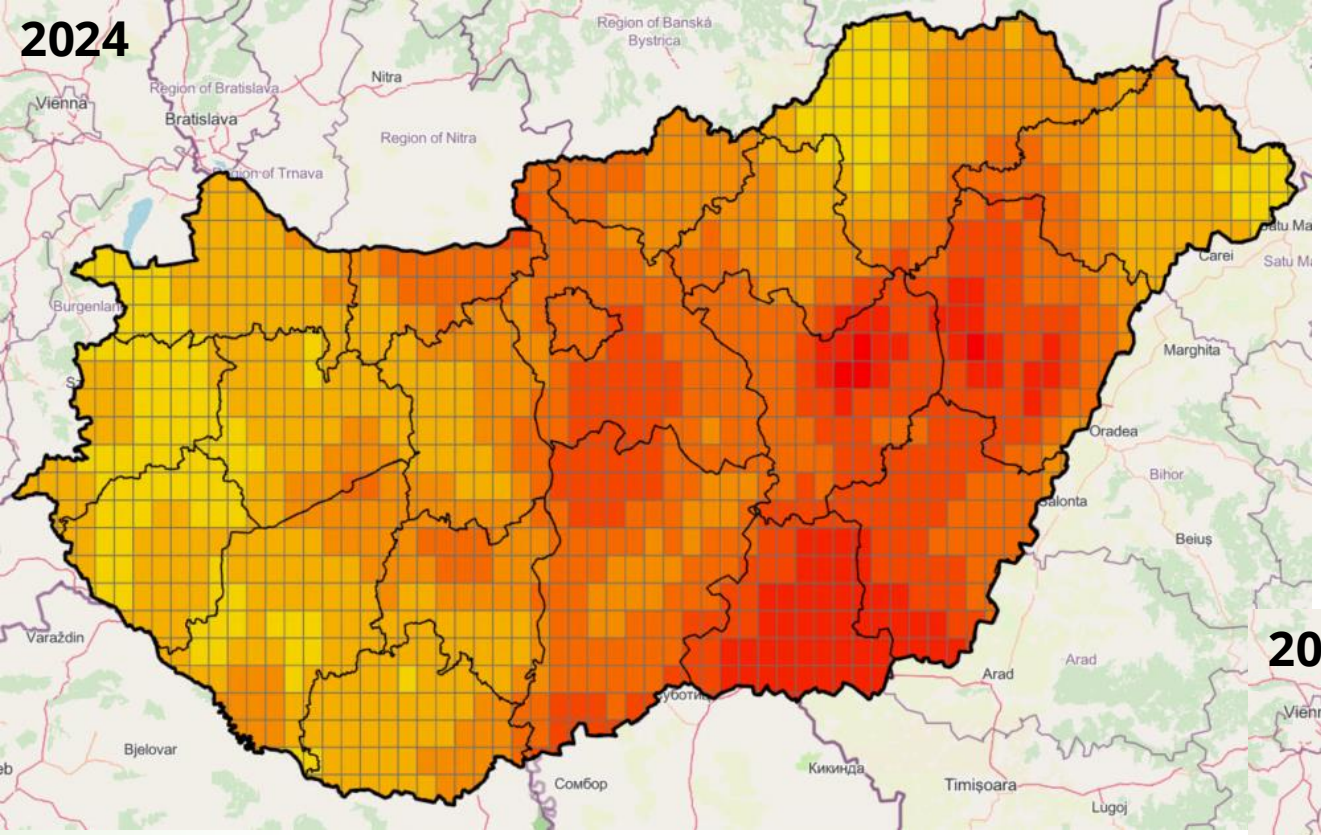
- 50-100 mm
- 100-150 mm
- 150-200 mm
- 200-250 mm
- 250-300 mm
- 300-350 mm

2025



KITE

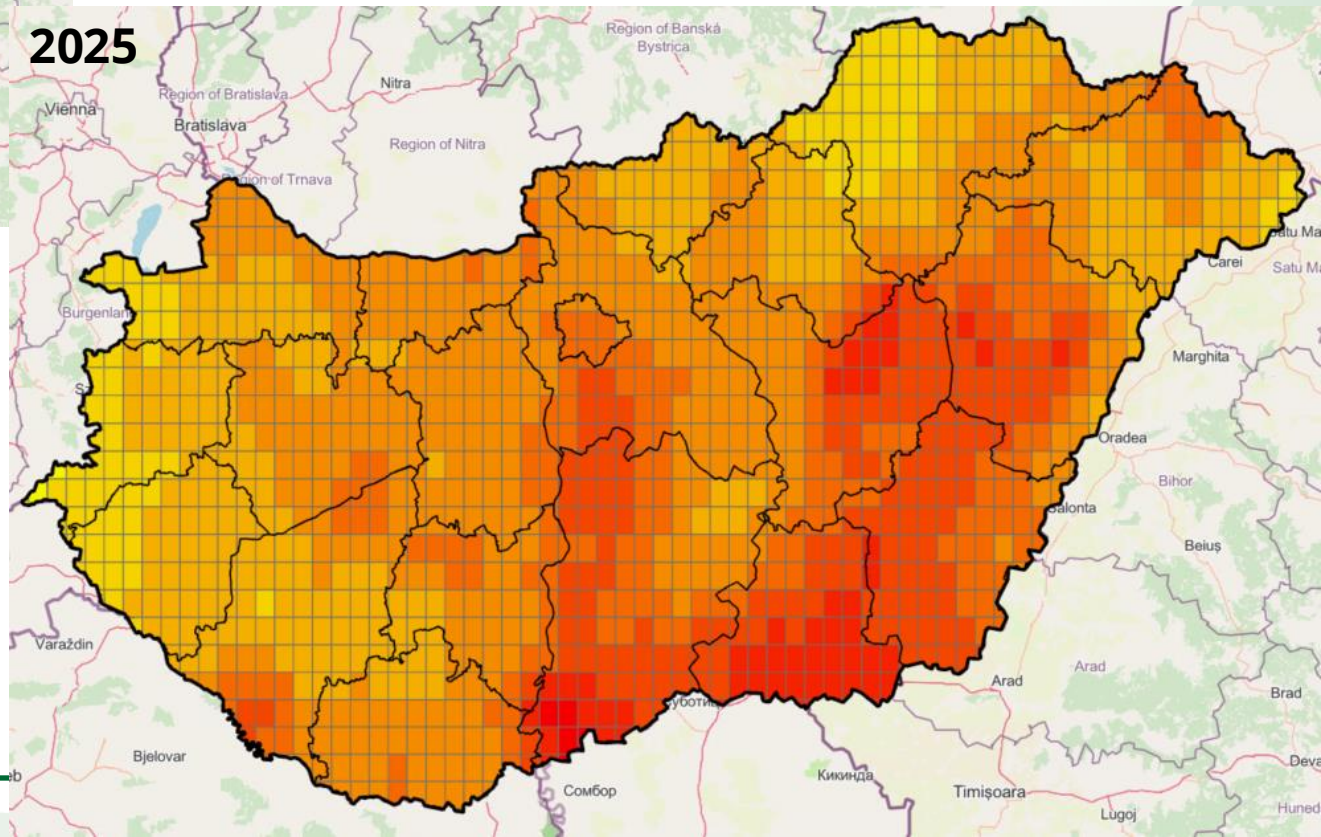
2024



Reference evapotranspiration, ET_0 (mm)
04/15 – 07/31

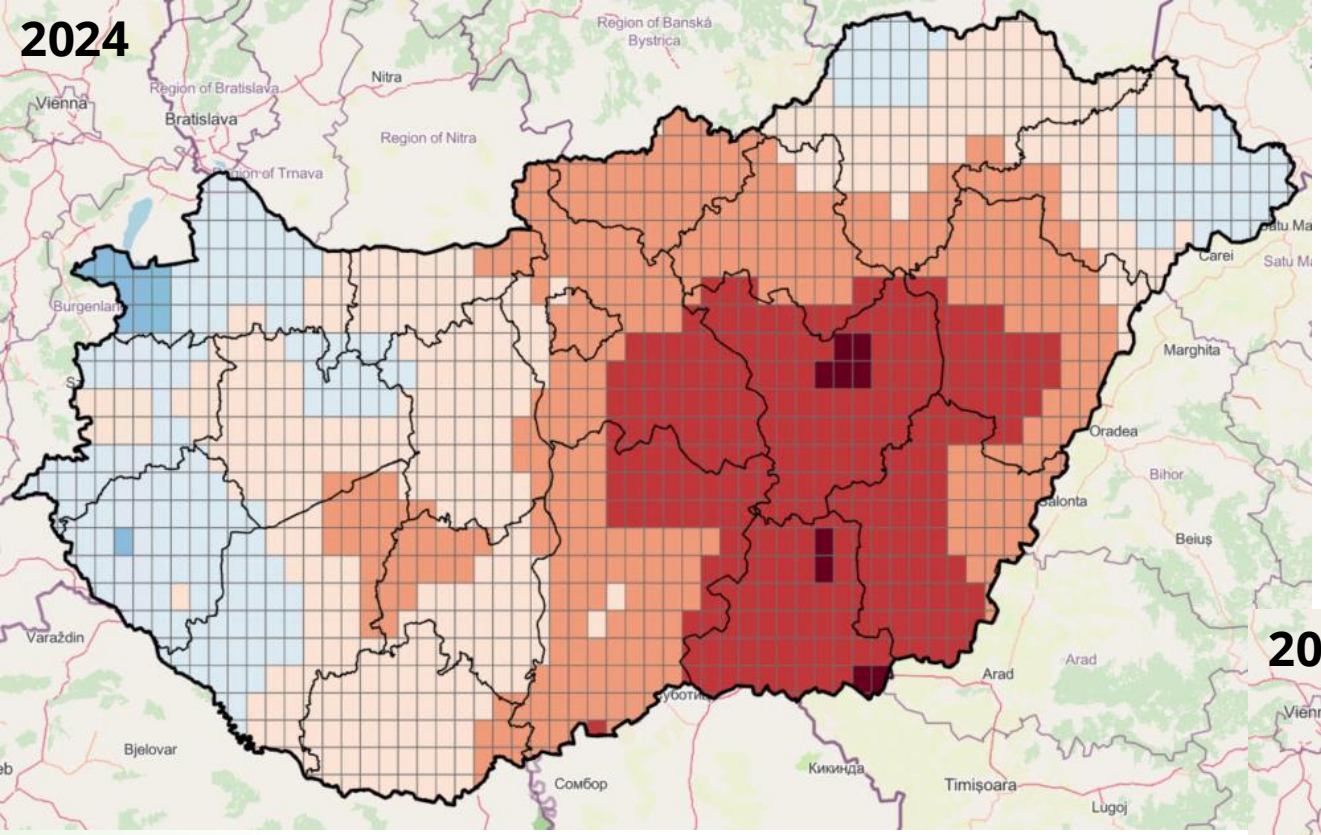
- 380-400 mm
- 400-420 mm
- 420-440 mm
- 440-460 mm
- 460-480 mm
- 480-500 mm
- 500-520 mm
- 520-540 mm

2025



KITE

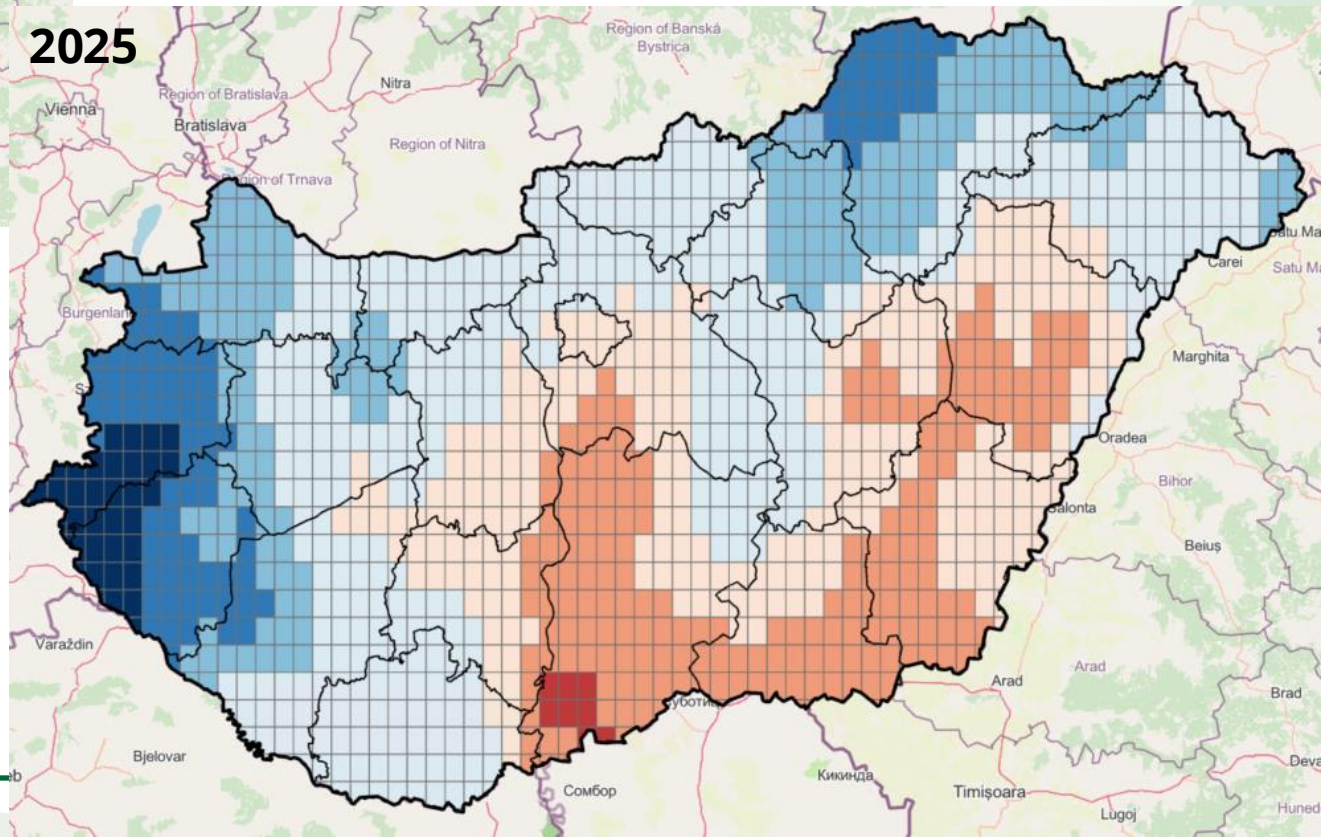
2024



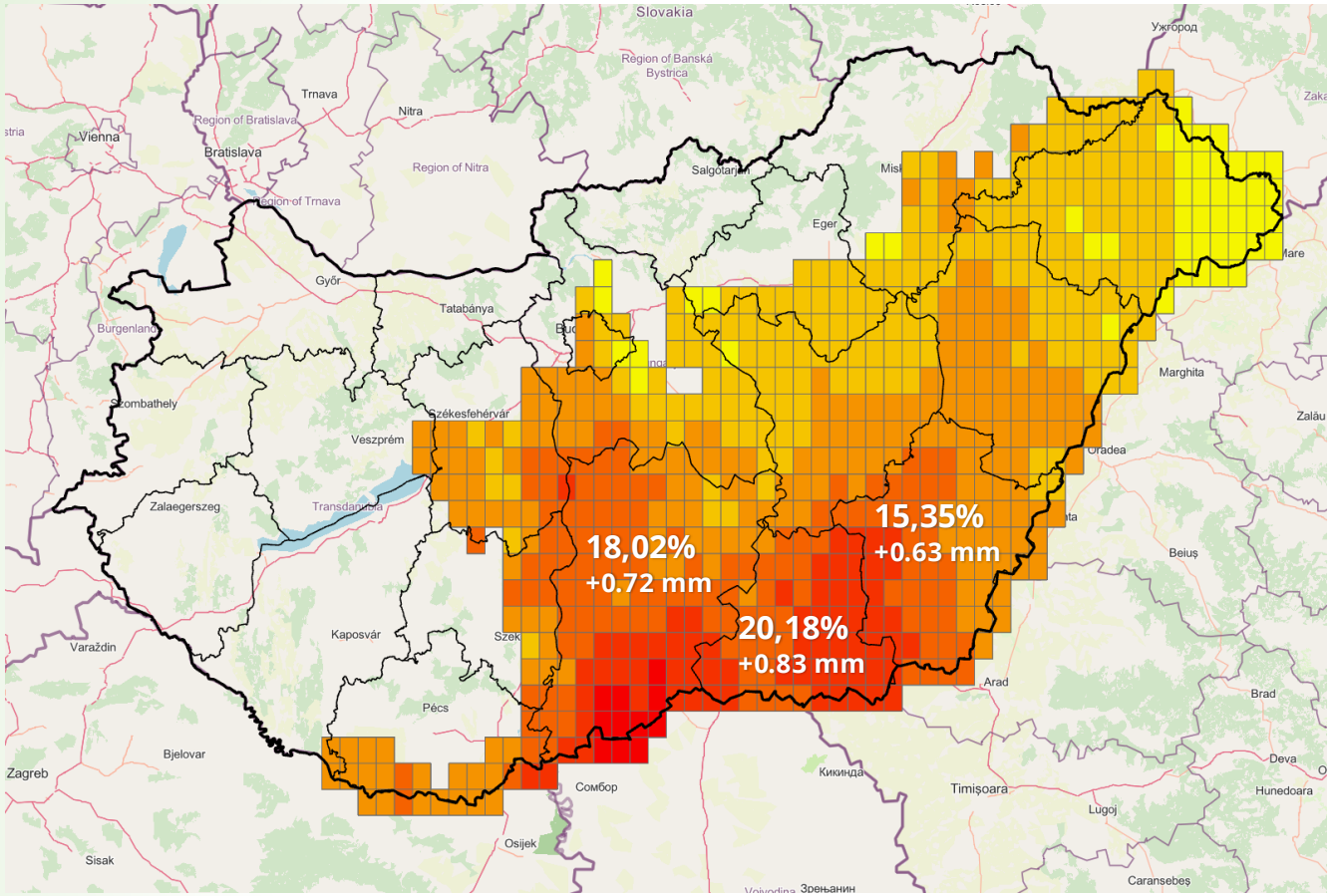
Climatic water balance
04/15 – 07/31

- -450 – -400 mm
- -400 – -350 mm
- -350 – -300 mm
- -300 – -250 mm
- -250 – -200 mm
- -200 – -150 mm
- -150 – -100 mm
- -100 – -50 mm

2025



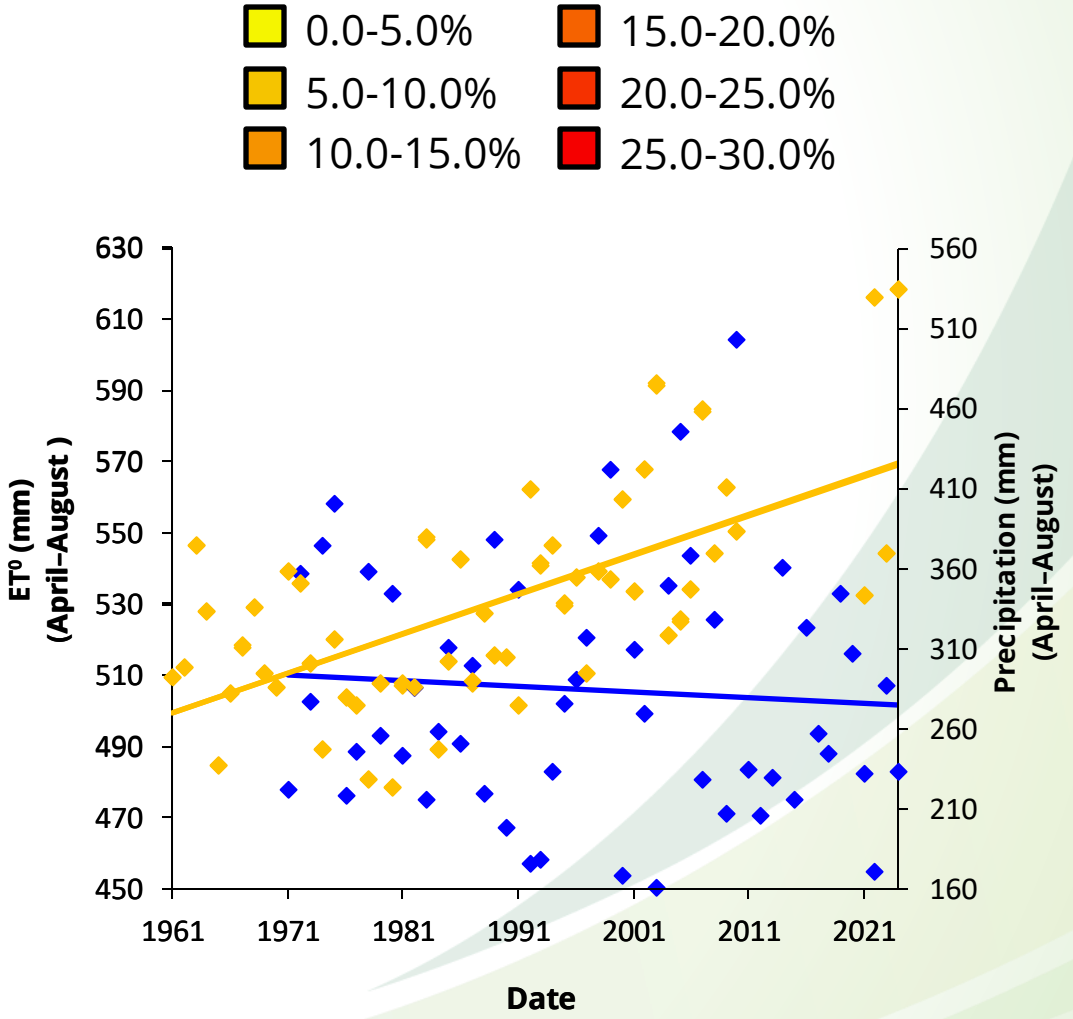
KITE



$$ET_0 = \frac{0{,}408 \cdot \Delta \cdot (R_n - G) + \gamma \cdot \frac{900}{T_{átlag} + 273} \cdot u_2 \cdot (e_s - e_a)}{\Delta + \gamma \cdot (1 + 0{,}34 \cdot u_2)}$$

Changing daily ET_0 data in the Great Hungarian Plain

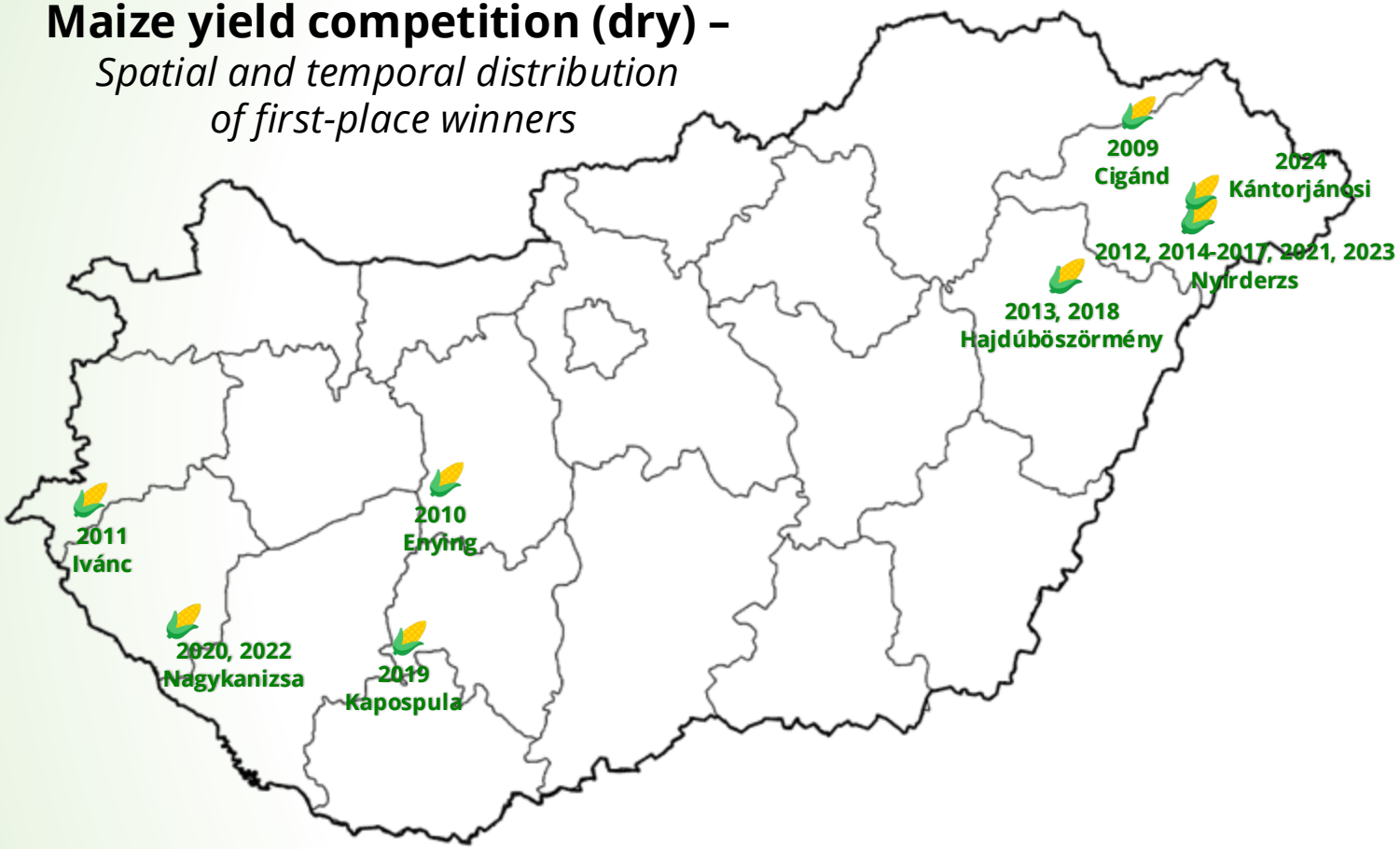
(For the year 2024, April–August interval, relative to the 1961–2000 baseline period)

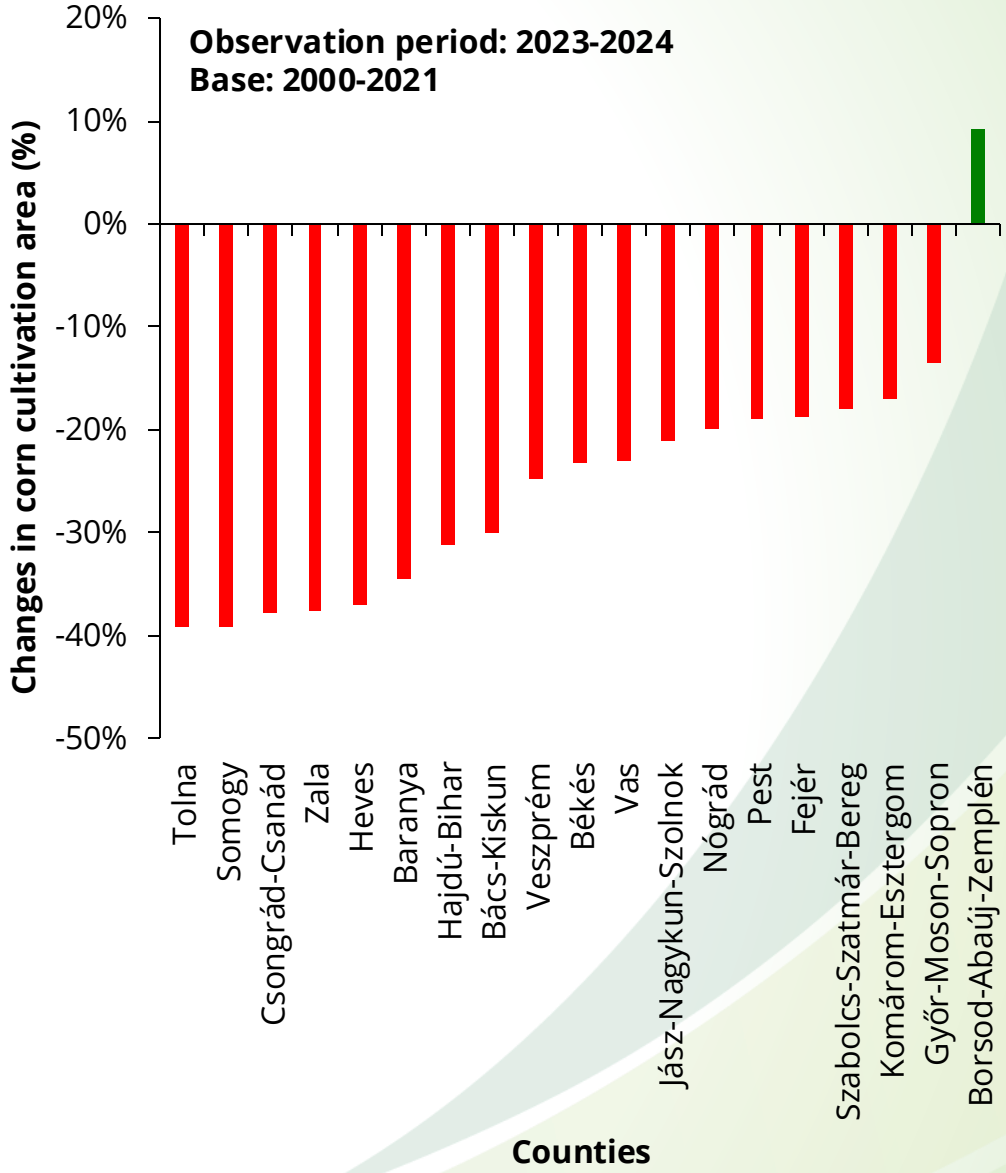


KITE

Changes in corn cultivation area

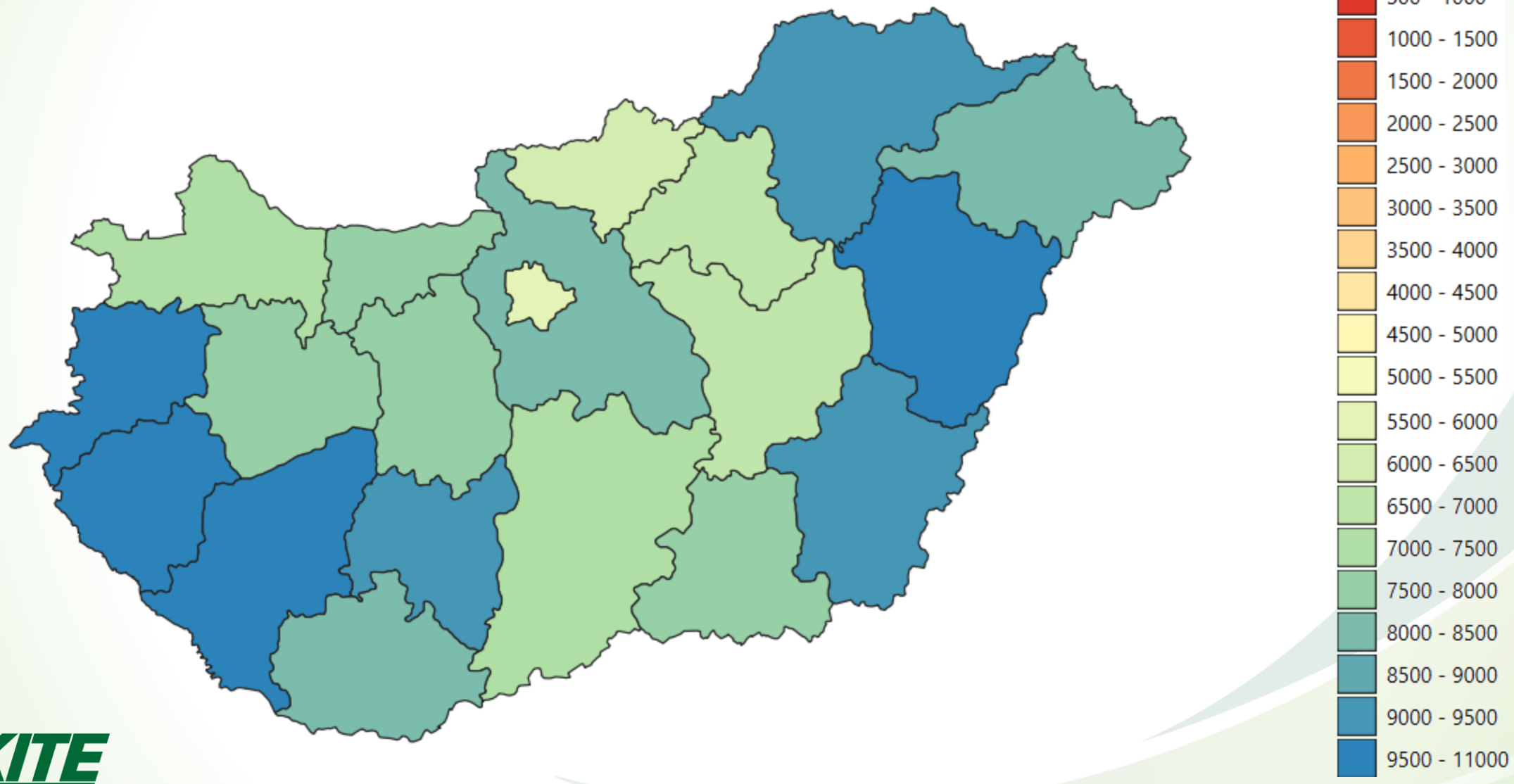
Maize yield competition (dry) –
Spatial and temporal distribution of first-place winners





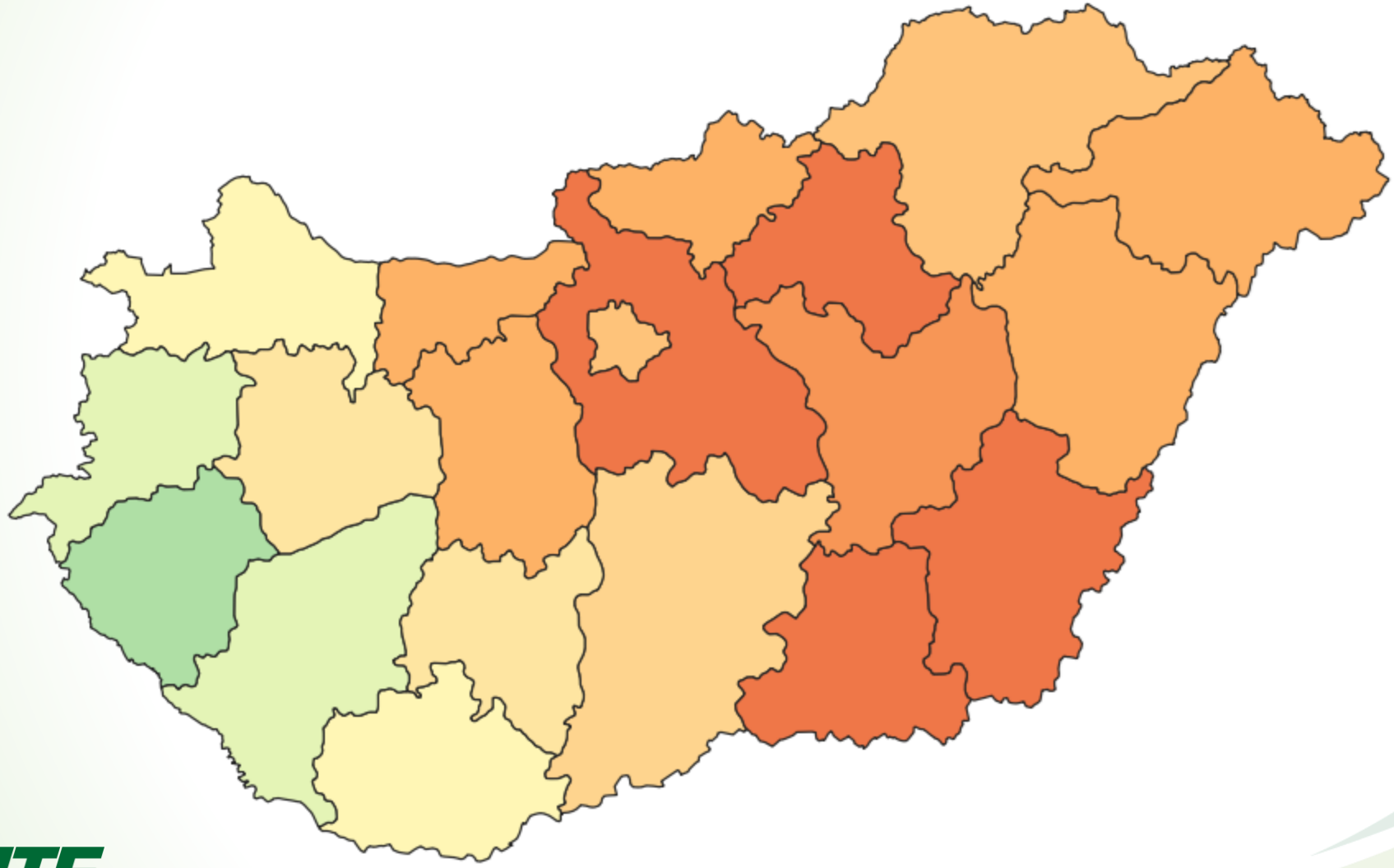
KITE

Corn yield (2020)



KITE

Corn yield (2022)

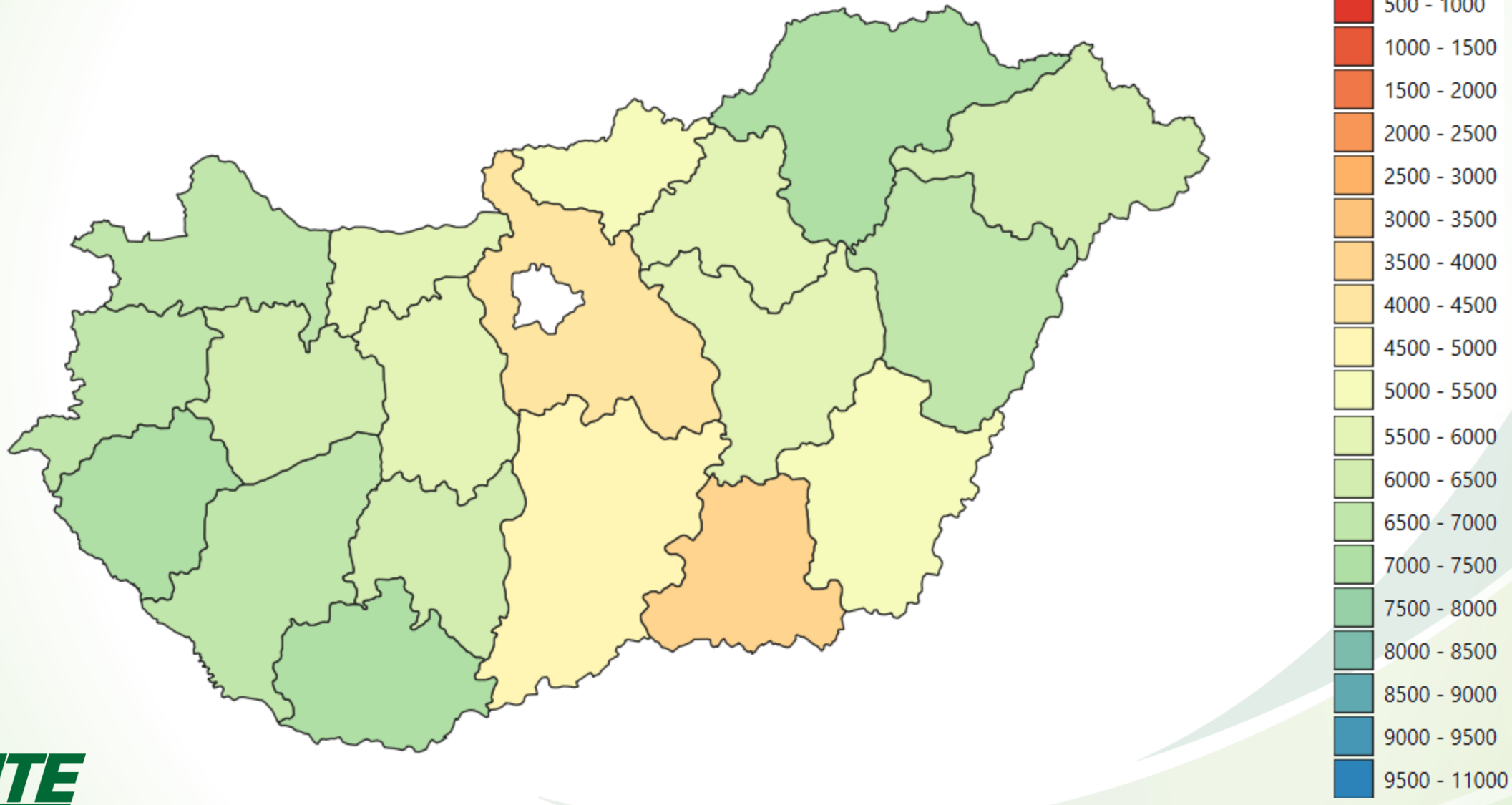


Yield (t/ha)

- 0 - 500
- 500 - 1000
- 1000 - 1500
- 1500 - 2000
- 2000 - 2500
- 2500 - 3000
- 3000 - 3500
- 3500 - 4000
- 4000 - 4500
- 4500 - 5000
- 5000 - 5500
- 5500 - 6000
- 6000 - 6500
- 6500 - 7000
- 7000 - 7500
- 7500 - 8000
- 8000 - 8500
- 8500 - 9000
- 9000 - 9500
- 9500 - 11000

KITE

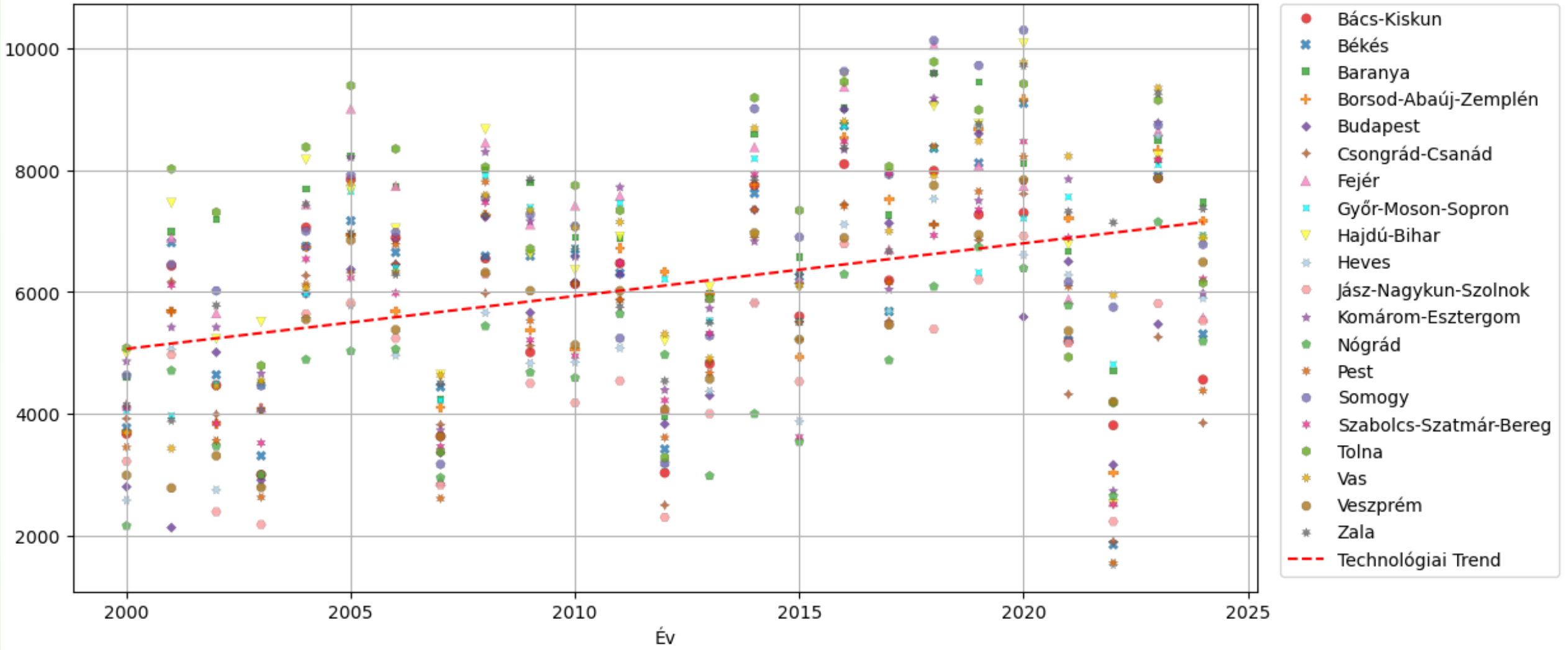
Corn yield (2024)



KITE

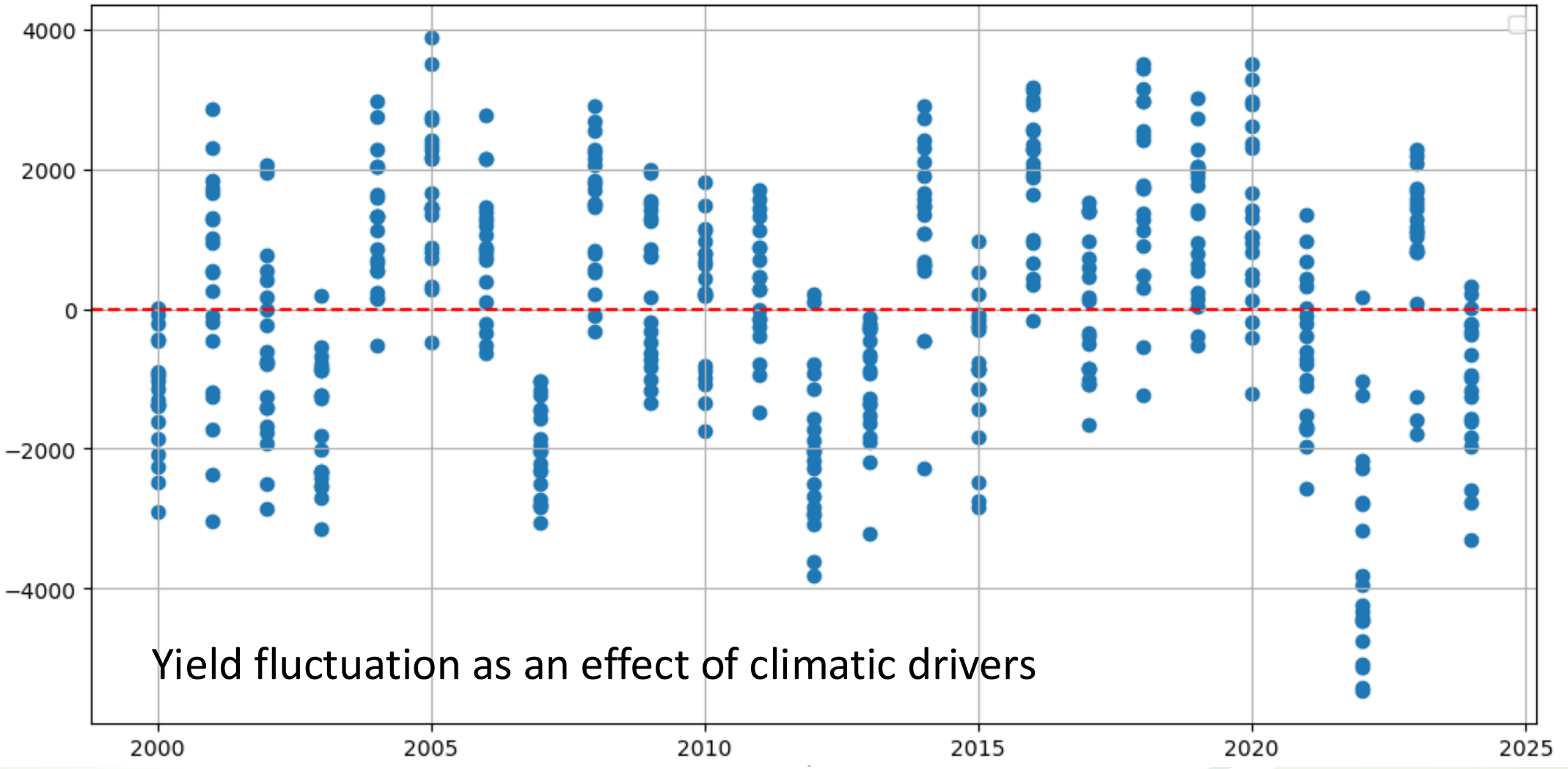
Corn yield by county and the technological trend

+87 kg/year



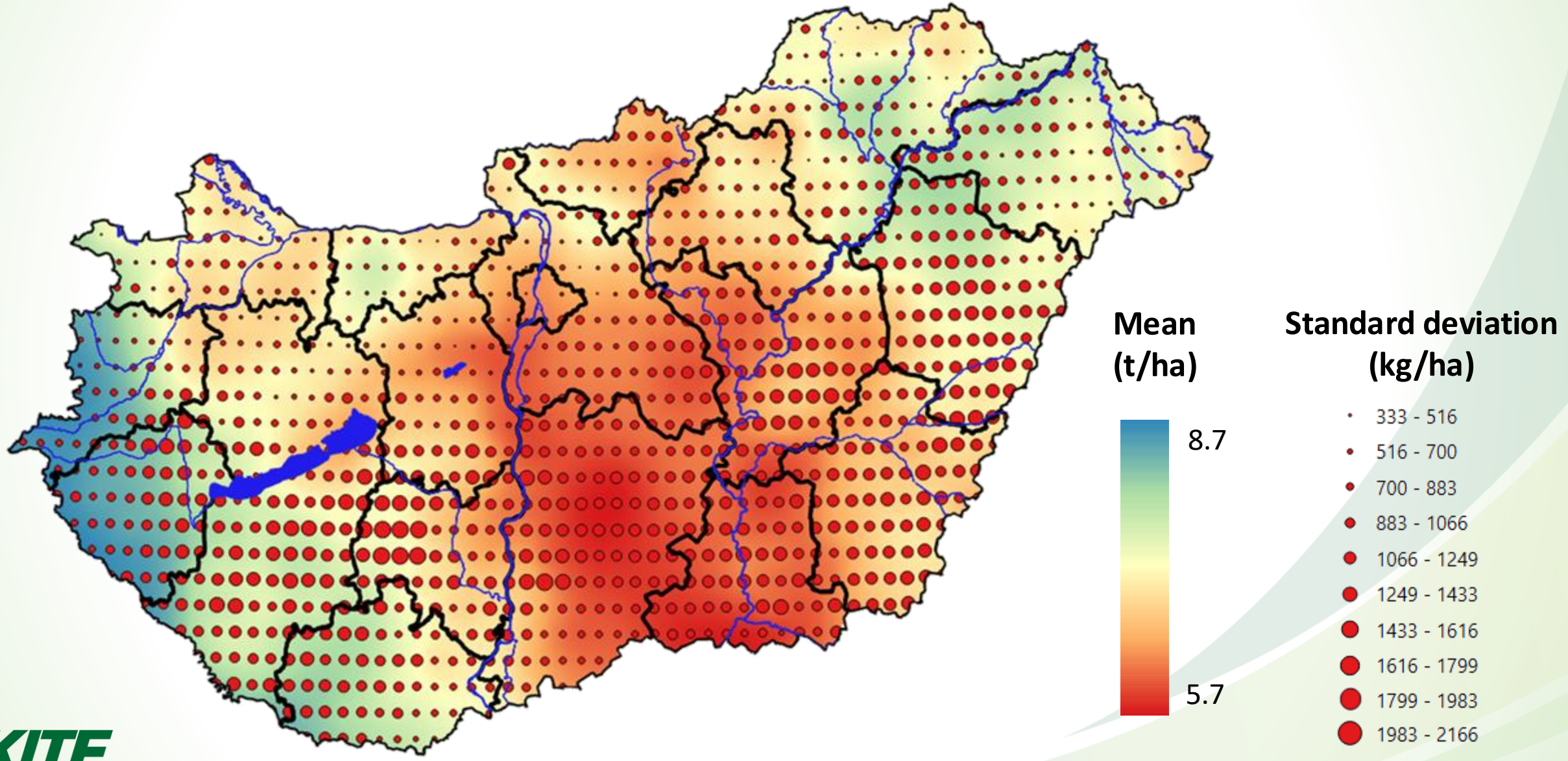
KITE

Corn yield deviations from technological trend



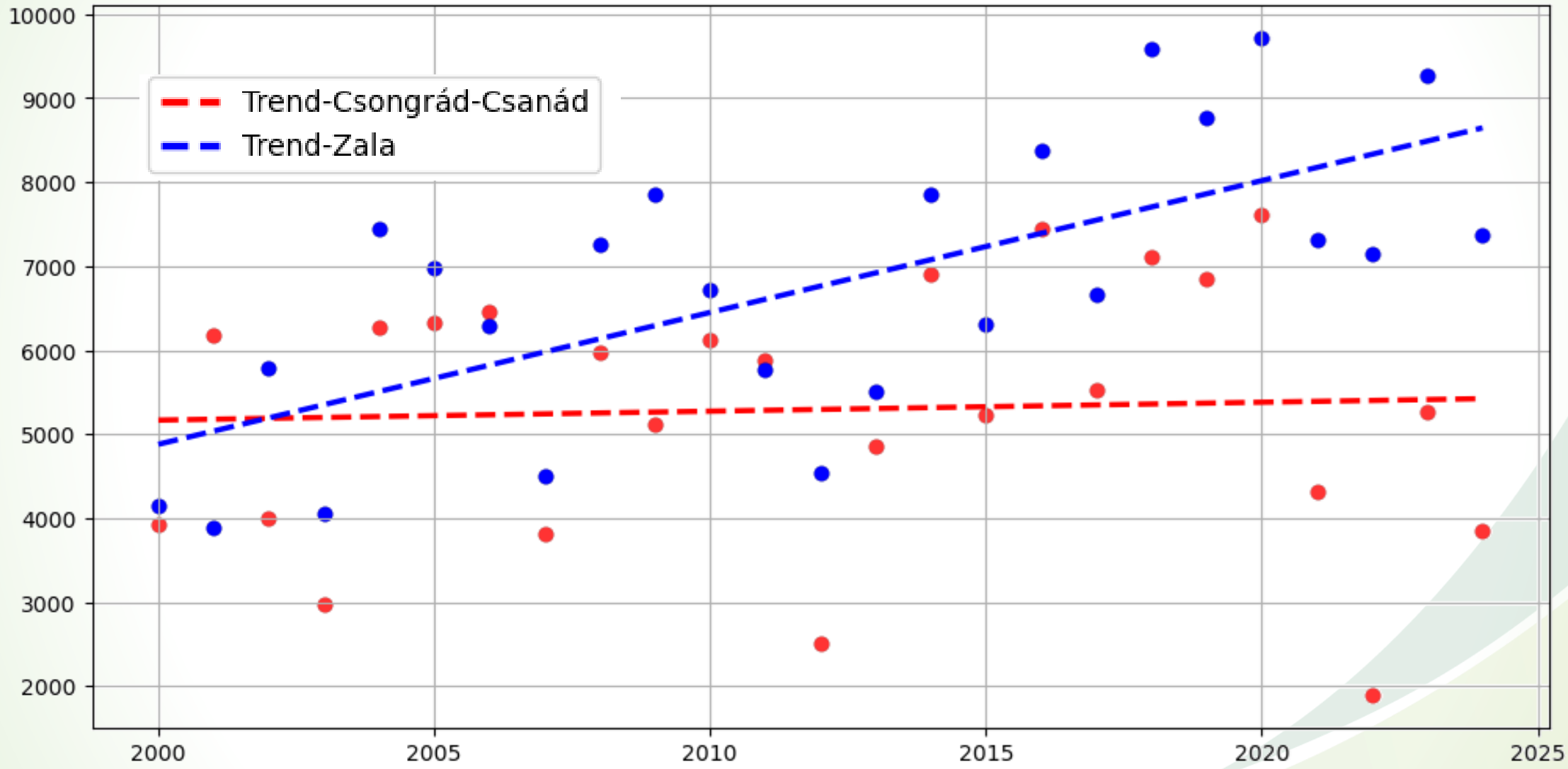
KITE

Corn yield potential (2019, 2020, 2021, 2023, 2024)



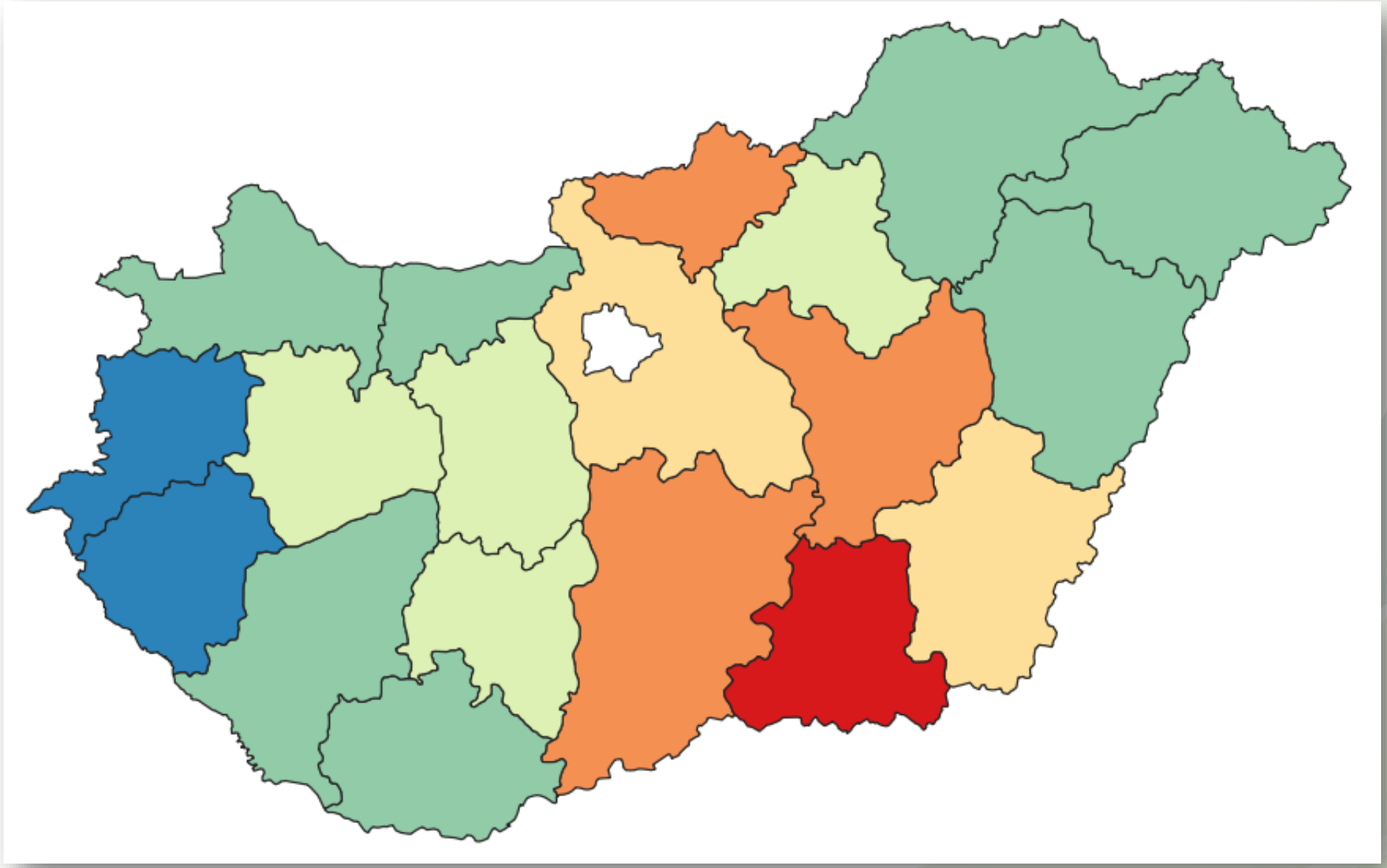
KITE

Corn yield trend: A Western vs. a Southern County



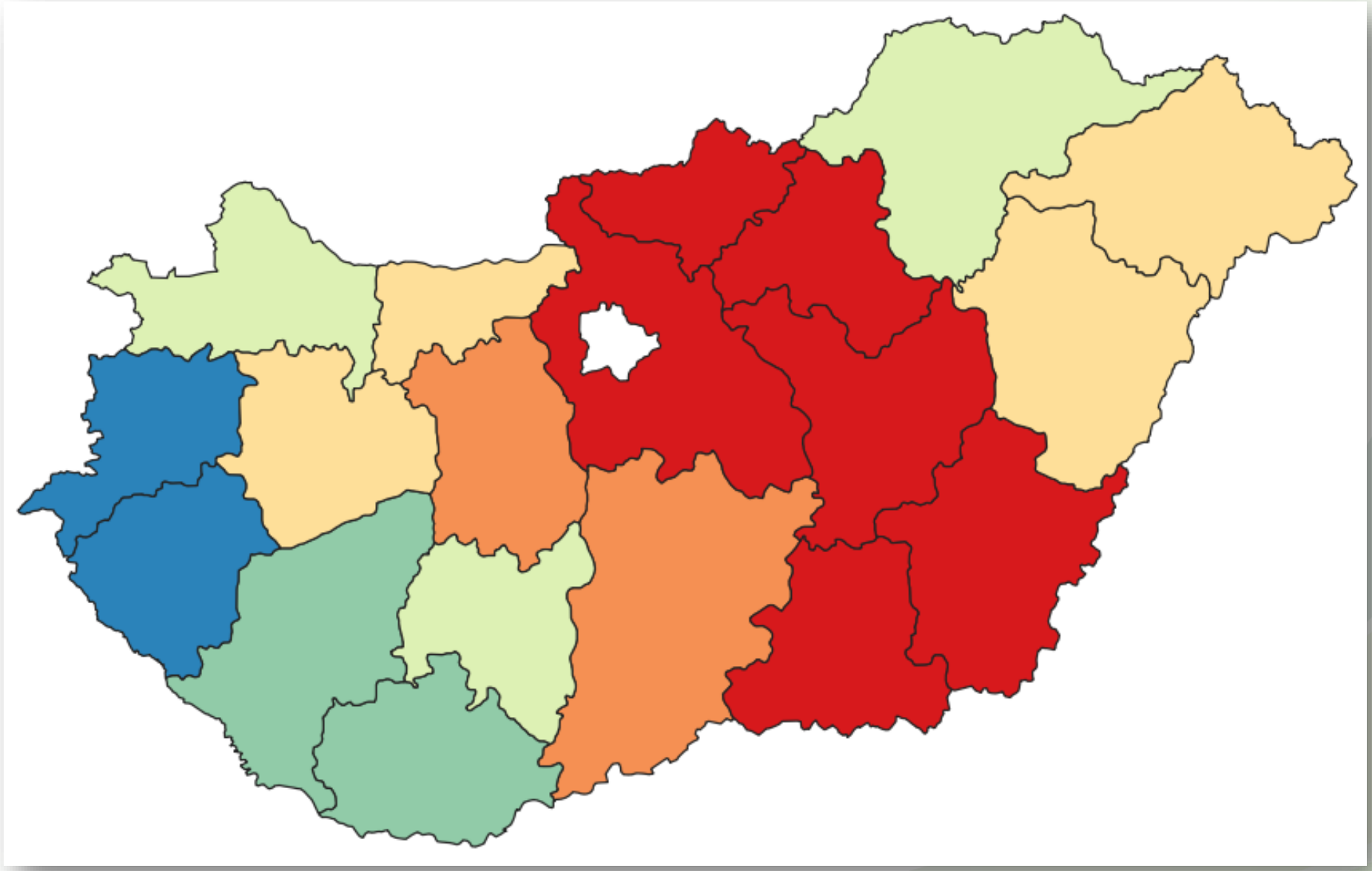
KITE

Mean profit of Corn (2020, 2021, 2023, 2024)



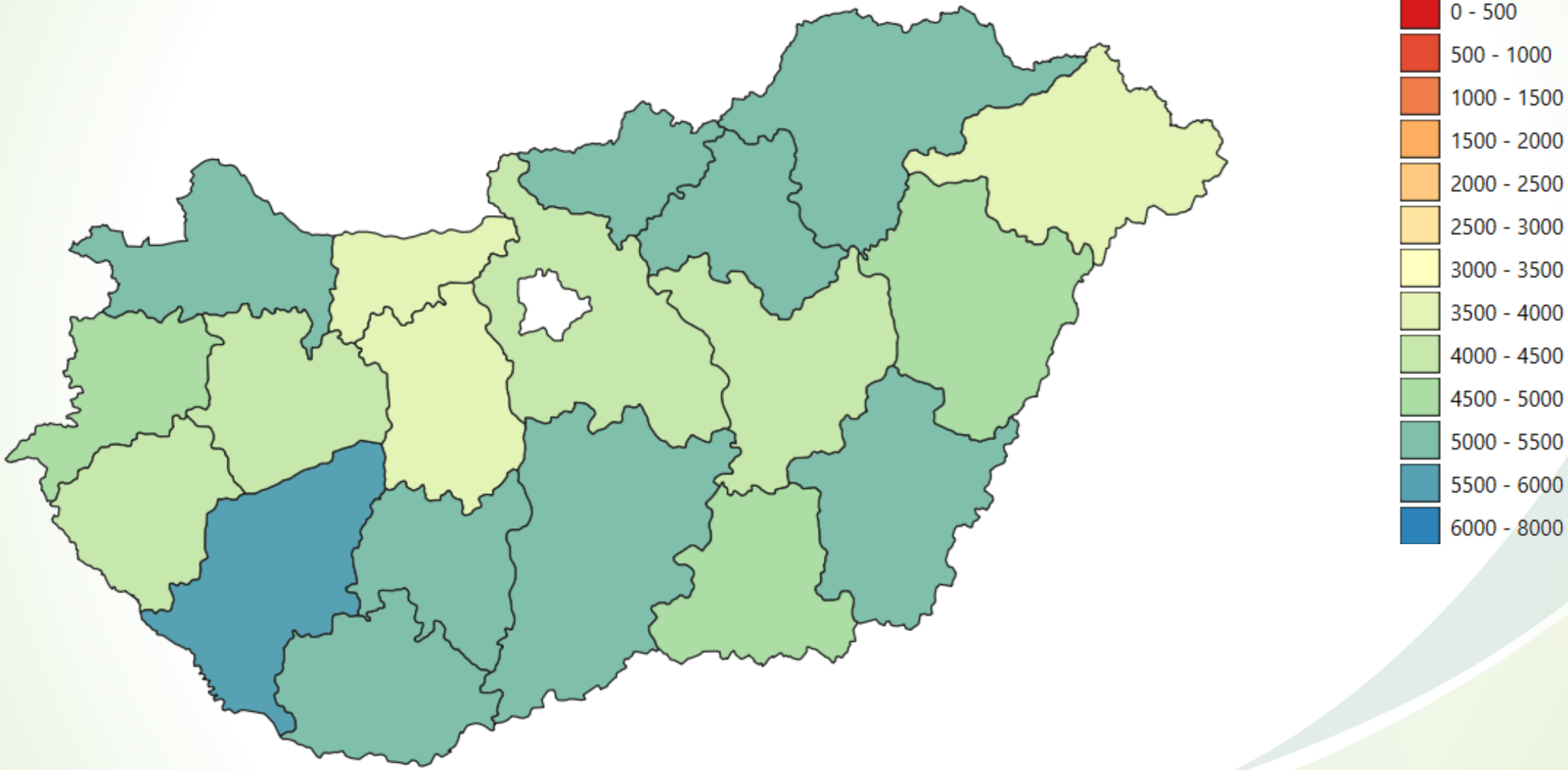
KITE

Mean profit of Corn (2020-2024)



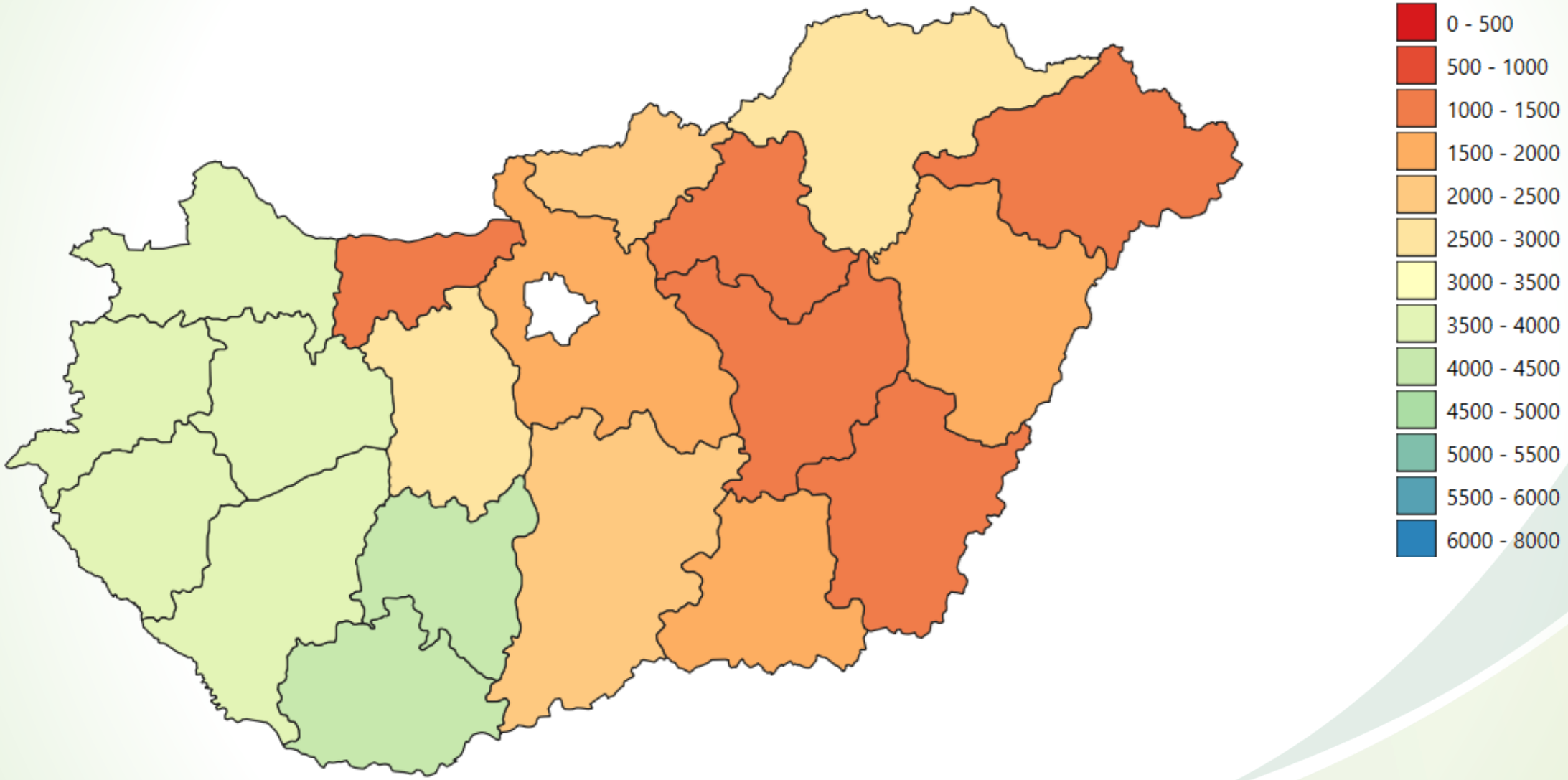
KITE

Sorghum yield (2020)



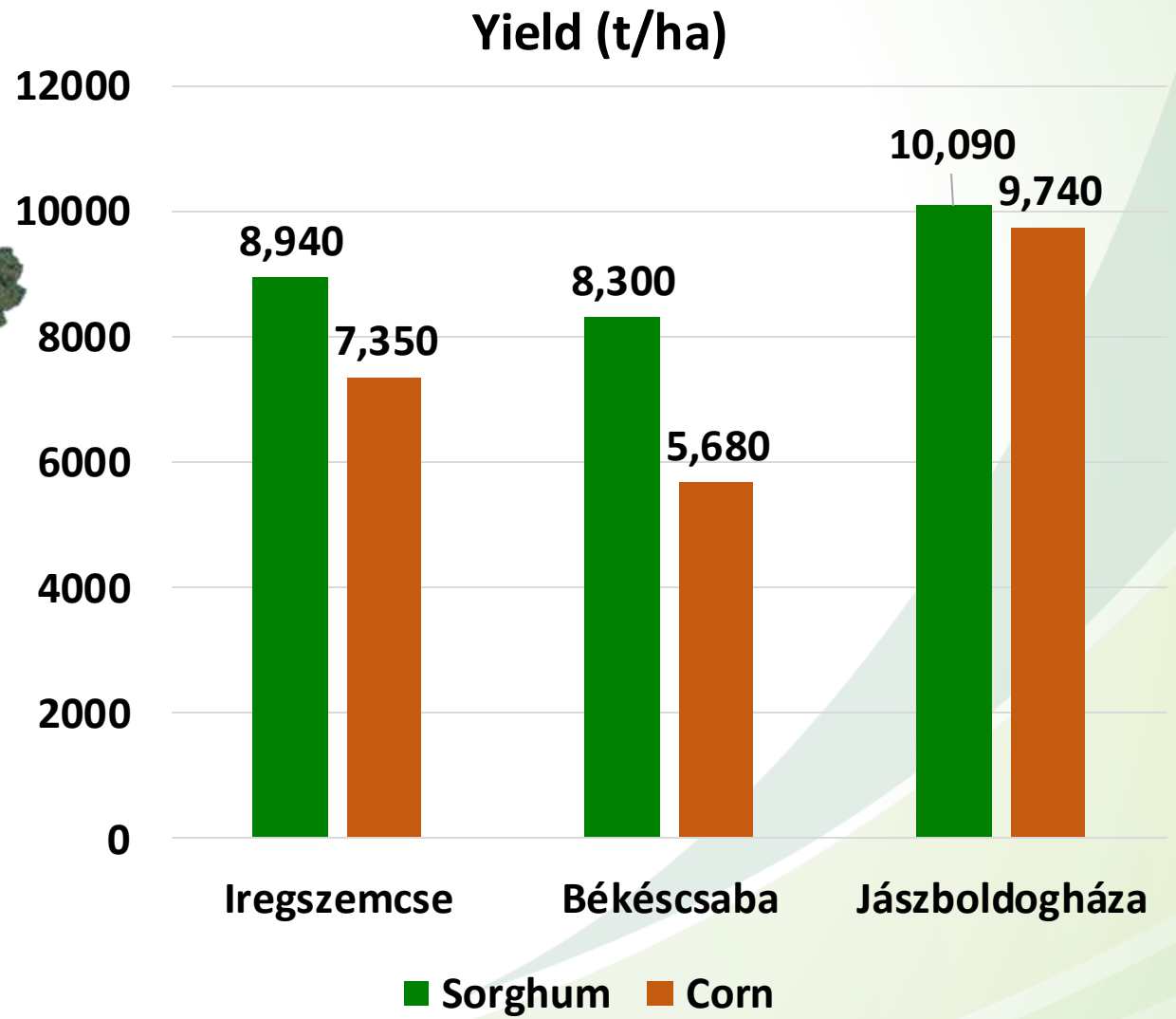
KITE

Sorghum yield (2022)



KITE

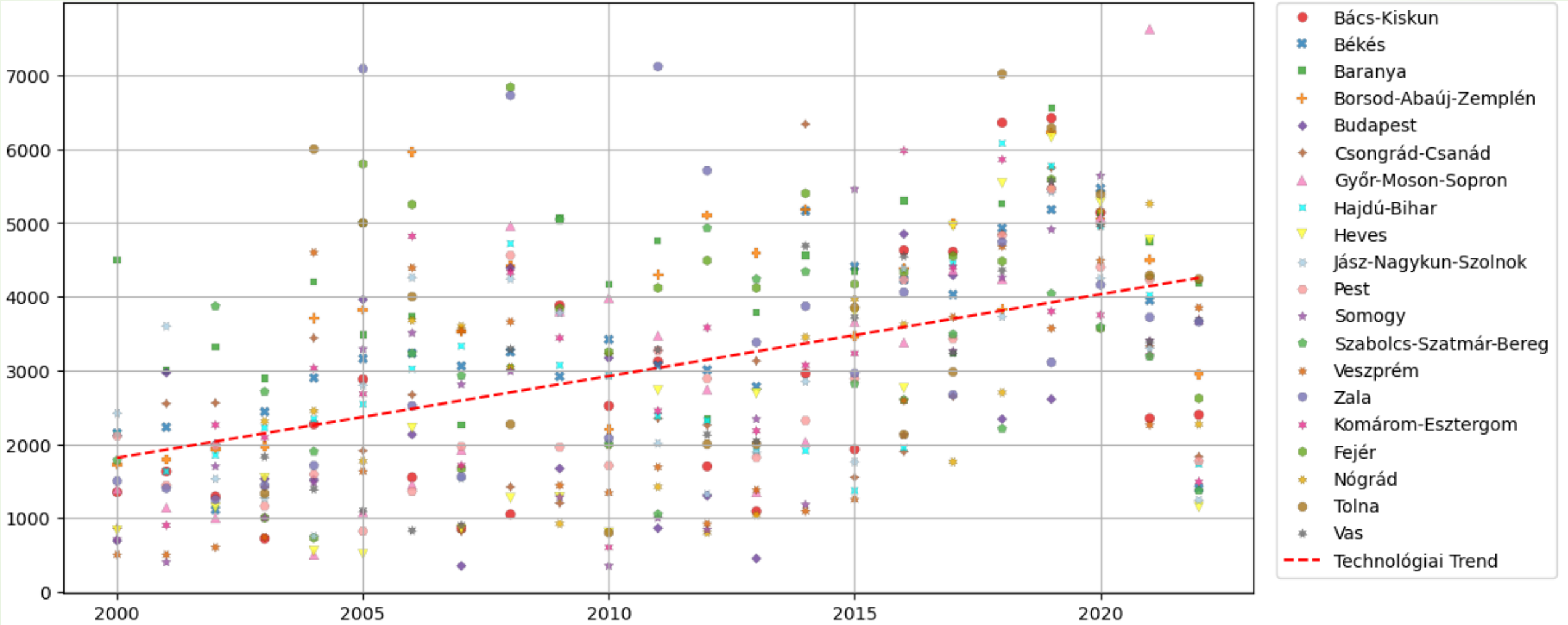
Sorghum and Corn yields on small plot experiments (2024)



KITE

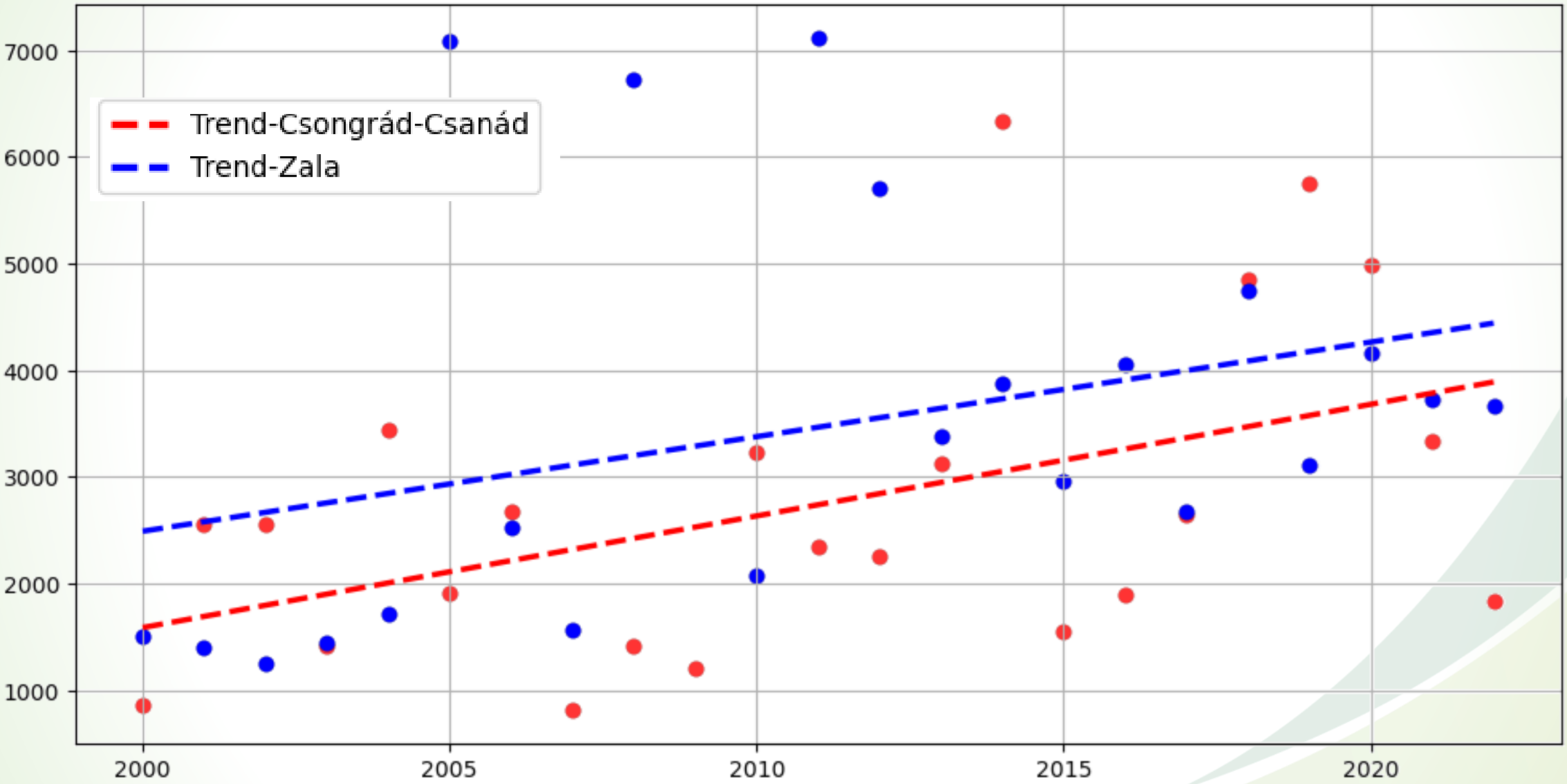
Sorghum yield by county and the technological trend

+111 kg/year



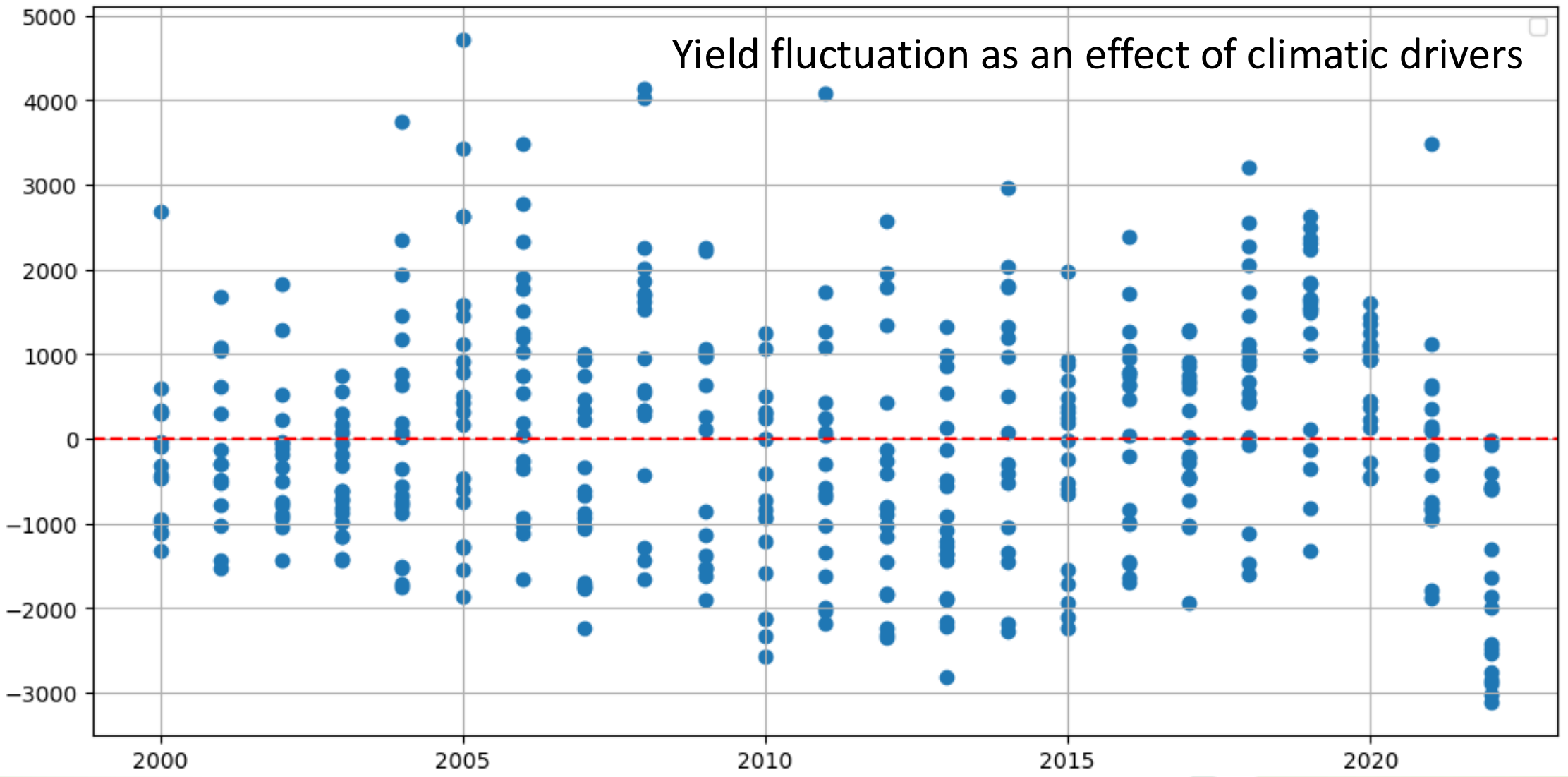
KITE

Sorghum yield trend: A Western vs. a Southern County



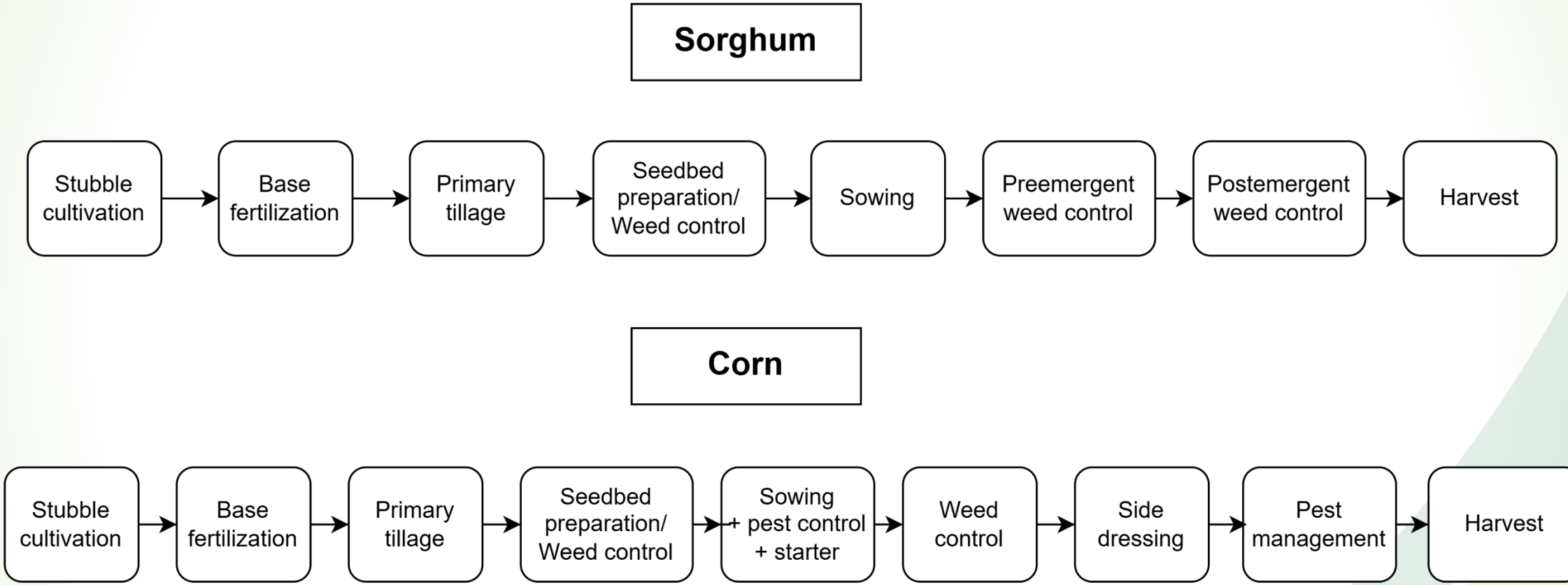
KITE

Sorghum yield deviations from technological trend



KITE

Sorghum agritechnology



KITE

Cost analysis of Sorghum and Corn (2021-2024)

	Sorghum	Corn
Input cost (HUF/ha)	111 888	257 627
Seed cost (HUF/ha)	40 300	74 000
Fertilizer cost (HUF/ha)	38 150	111 525
Pesticide cost (HUF/ha)	33 438	72 102
Machinery cost (HUF/ha)	145 500	146 500
Total cost (HUF/ha)	257 388	404 127
Commodity Price (HUF/t)	59 328	64 377
Break-even point (tonnes)	**4.33**	**6.28**

KITE

KITE

Jelen vagyunk a jövőben

Thank you for your attention!