

Agroisolab GmbH

**Comparability and  
databases - a constant  
challenge for stable  
isotope analysis**

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# Agroisolab.

## KPT Project

### General:

- Start: 2012, currently 39 round
- free of charge - own initiative of Agroisolab GmbH
- open network of stable isotope laboratories
- no obligation of measurements
- currently 34 laboratories worldwide participate

### Details:

- up to 3 samples per round
  - the spectrum of stable isotopes of the bioelements should be covered with samples in each round
  - time schedule: measurement time: 1-2 month
  - evaluation, new shipment of samples: 1-2 month
- > usually 4 to 6 rounds per year

### Aim:

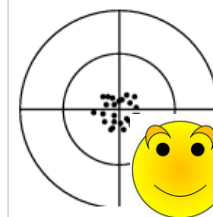
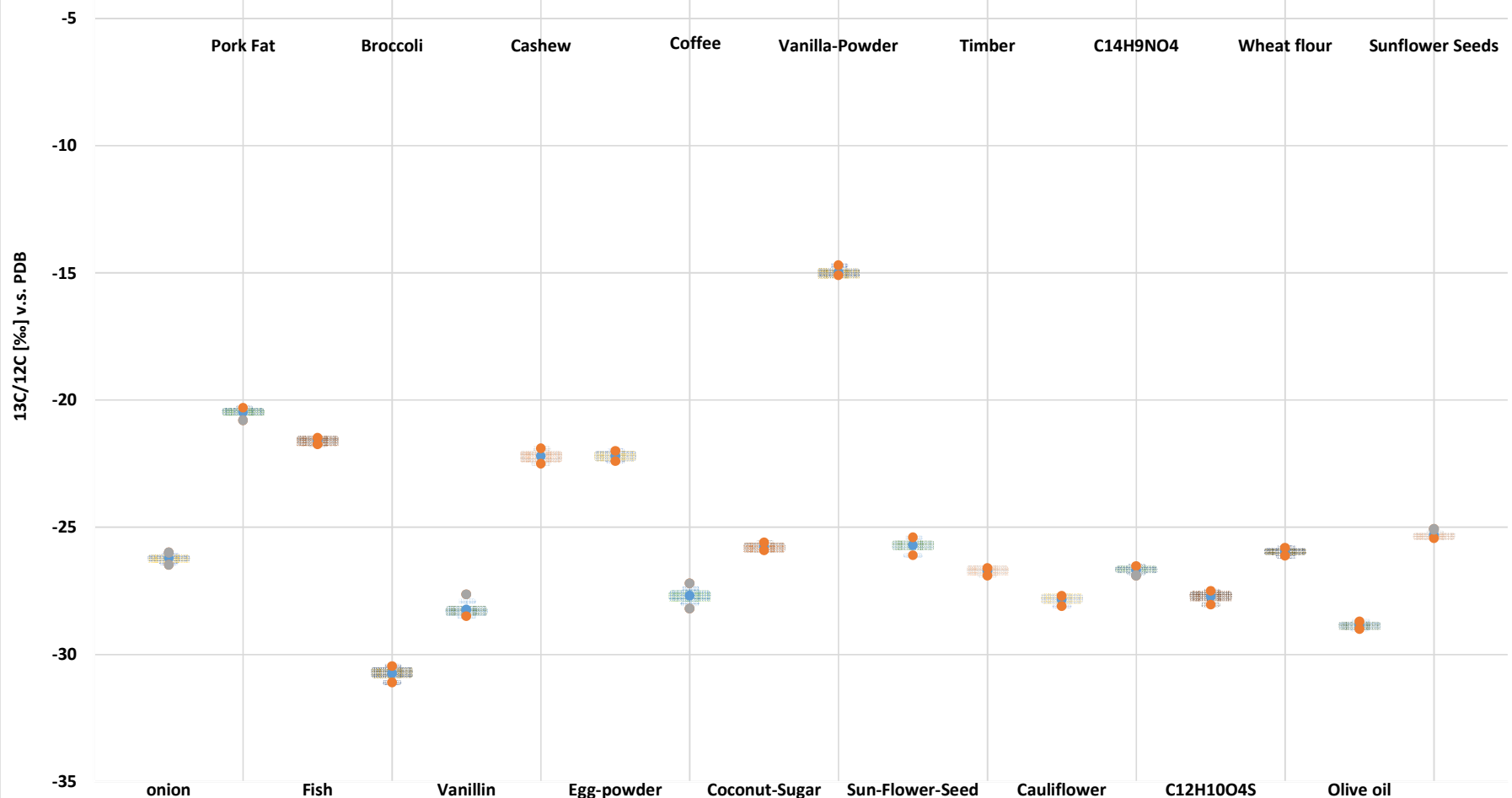
- Establishment of possibilities for rapid laboratory comparability  
-> up to 6. rounds per year
- Development of high comparability in "routine".
- To initiate open discussion about measurements and application problems.
- To initiate continuous improvement in comparability.
- To initiate standardization of methods.

**-> Long-term: optimize quality of measurement data in general database**

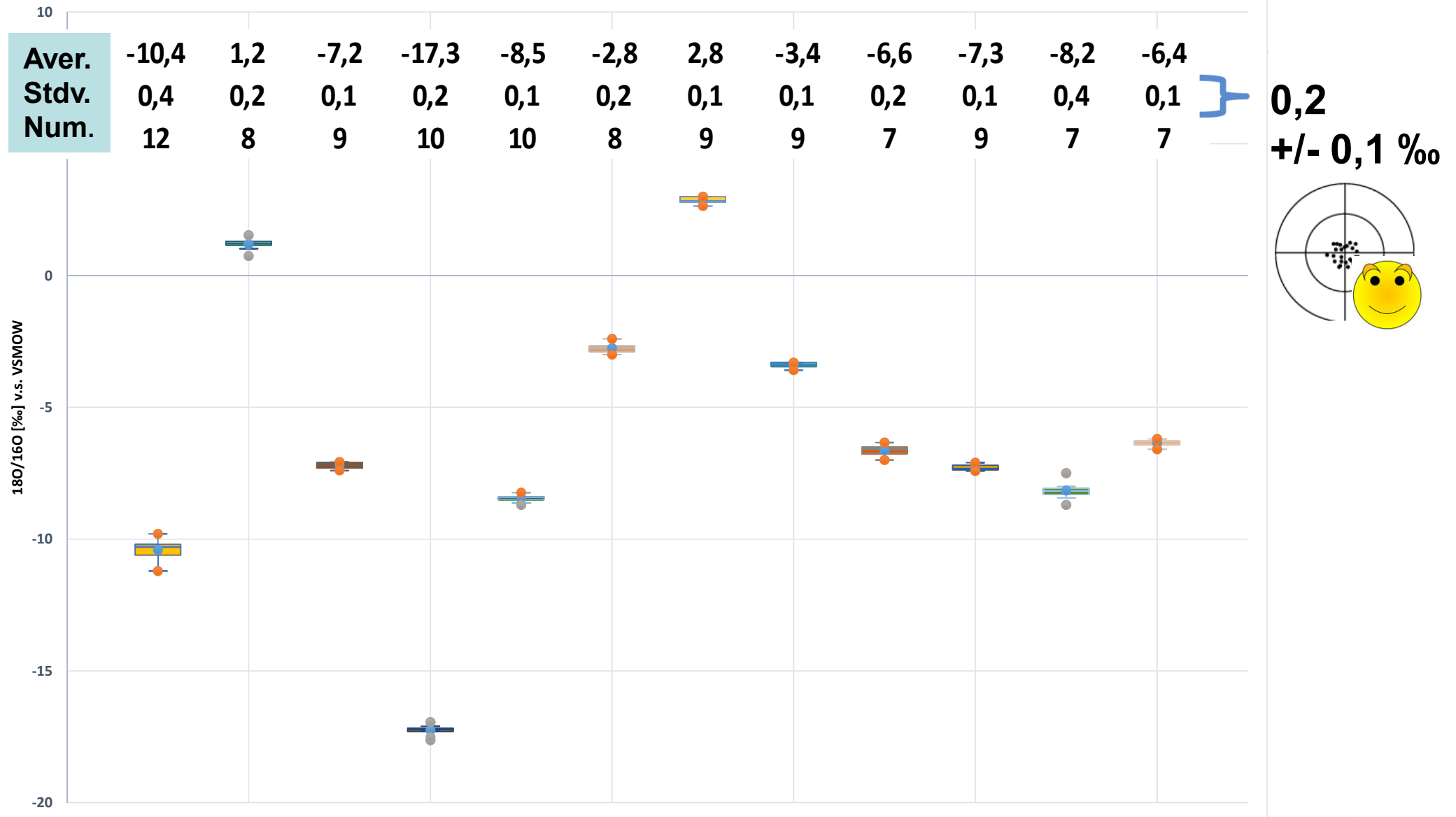
KPT: 2017-2020 – 18 rounds:  $^{13}\text{C}/^{12}\text{C}_{(\text{organic})}$

| Aver. | -26,2 | -20,5 | -21,6 | -30,7 | -28,2 | -22,2 | -22,2 | -27,7 | -25,8 | -15,0 | -25,7 | -26,7 | -27,8 | -26,7 | -27,7 | -26,0 | -28,9 | -25,3 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Stdv. | 0,1   | 0,1   | 0,1   | 0,2   | 0,2   | 0,2   | 0,1   | 0,3   | 0,1   | 0,1   | 0,2   | 0,1   | 0,1   | 0,1   | 0,2   | 0,1   | 0,1   | 0,1   |
| Num.  | 12    | 12    | 11    | 12    | 13    | 12    | 13    | 12    | 11    | 12    | 13    | 14    | 13    | 13    | 13    | 14    | 11    | 13    |

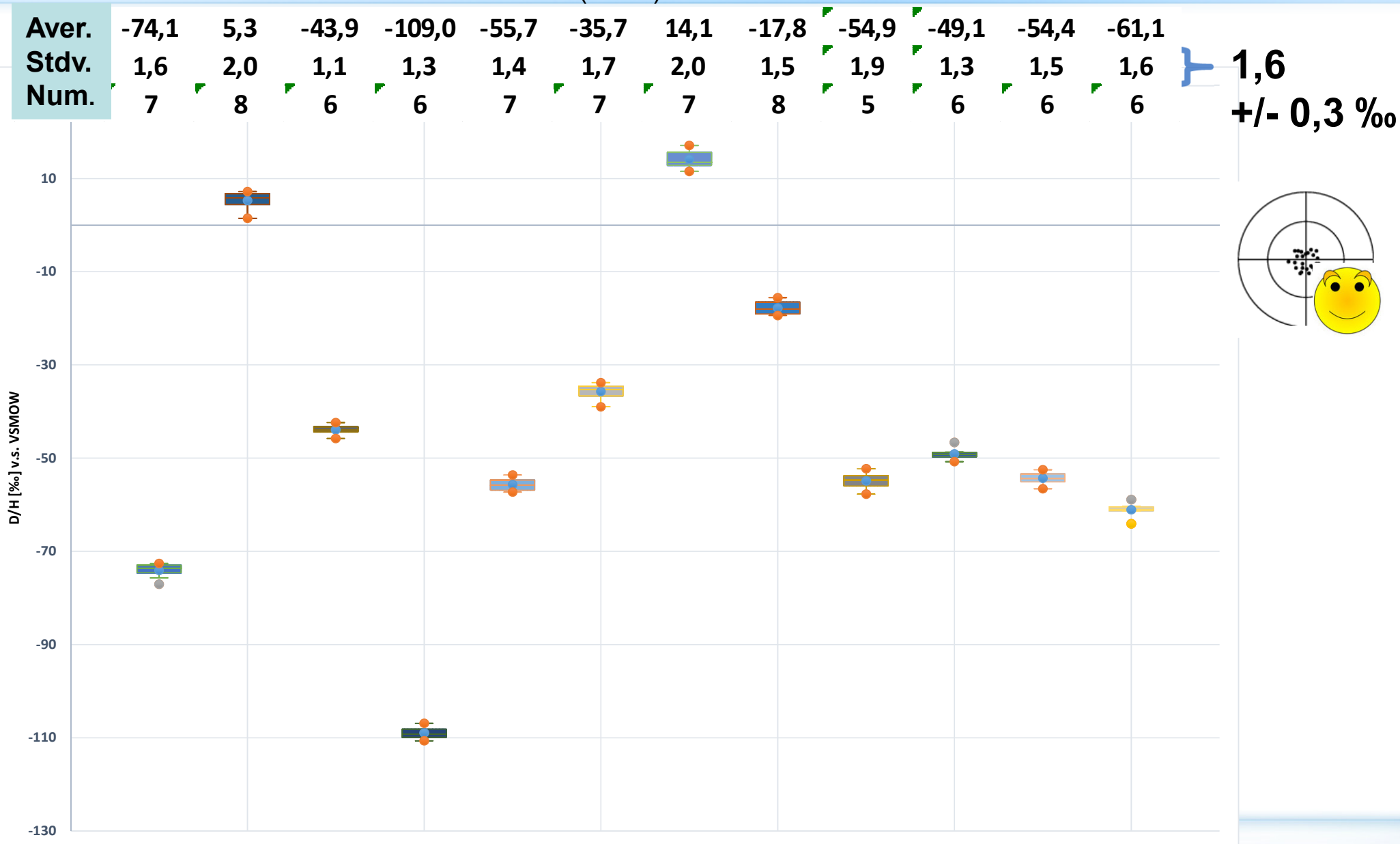
0,15 +/-  
0,05 ‰



KPT: – 2017-2020 - 12 rounds:  $^{18}\text{O}/^{16}\text{O}_{(\text{water})}$



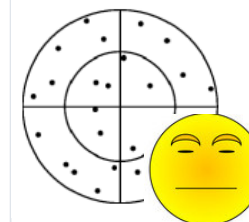
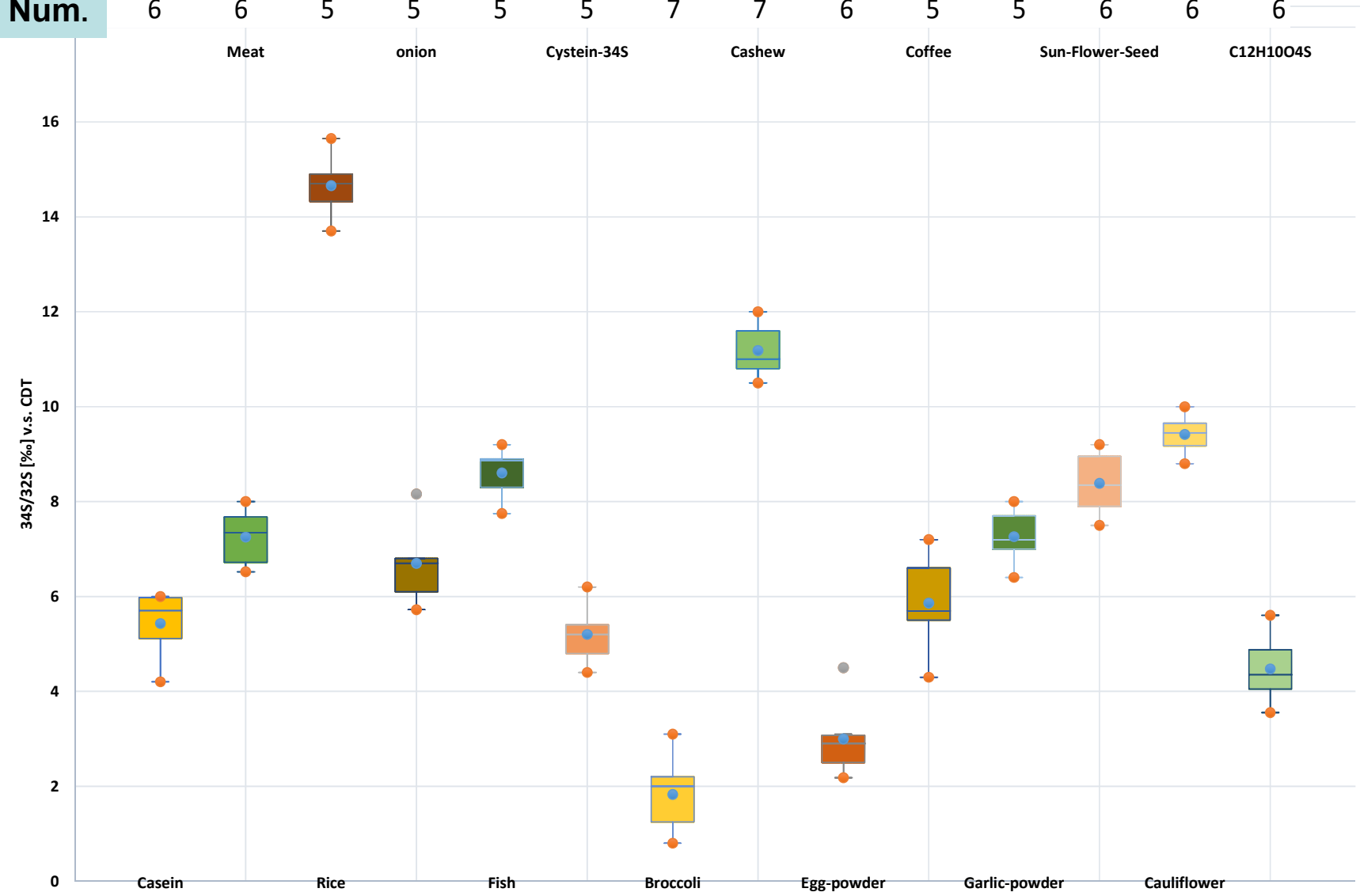
KPT: 2017-2020 – 12 round: D/H<sub>(water)</sub>



KPT: 2017 – 2020 16 rounds:  $^{34}\text{S}/^{32}\text{S}_{(\text{Organic})}$

|              |     |     |      |     |     |     |     |      |     |     |     |     |     |     |
|--------------|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|
| <b>Aver.</b> | 5,4 | 7,3 | 14,7 | 6,7 | 8,6 | 5,2 | 1,8 | 11,2 | 3,0 | 5,9 | 7,3 | 8,4 | 9,4 | 4,5 |
| <b>Stdv.</b> | 0,7 | 0,6 | 0,7  | 0,9 | 0,6 | 0,7 | 0,8 | 0,6  | 0,8 | 1,1 | 0,6 | 0,7 | 0,4 | 0,7 |
| <b>Num.</b>  | 6   | 6   | 5    | 5   | 5   | 5   | 7   | 7    | 6   | 5   | 5   | 6   | 6   | 6   |

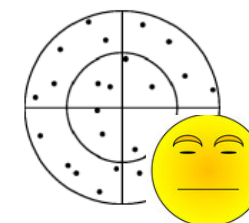
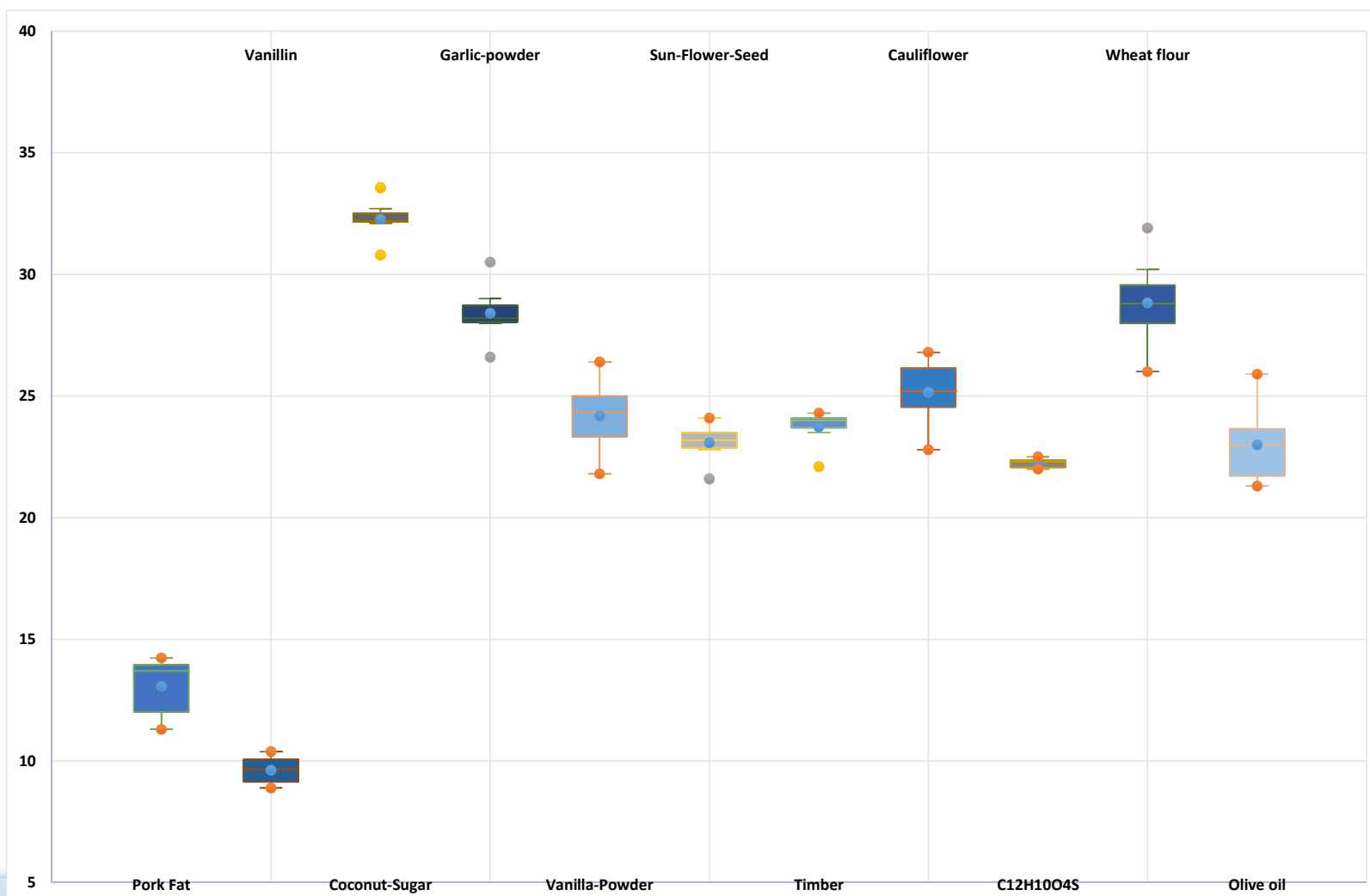
} 0,7 +/- 0,2



KPT: 2017-2020 – 11 rounds:  $^{18}\text{O}/^{16}\text{O}_{(\text{Organic})}$

| Aver. | 13,1 | 9,6 | 32,3 | 28,4 | 24,2 | 23,1 | 23,7 | 25,2 | 22,3 | 29,0 | 22,5 |
|-------|------|-----|------|------|------|------|------|------|------|------|------|
| Stdv. | 1,3  | 0,6 | 0,8  | 1,2  | 1,5  | 0,8  | 0,8  | 1,4  | 0,2  | 2,0  | 1,1  |
| Num.  | 6    | 6   | 7    | 7    | 7    | 6    | 7    | 7    | 6    | 6    | 6    |

} **1,1 +/- 0,5 ‰**

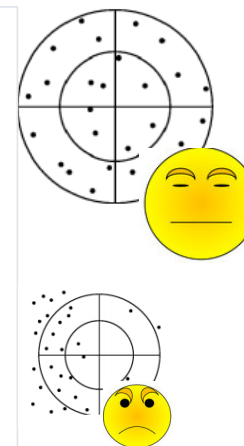
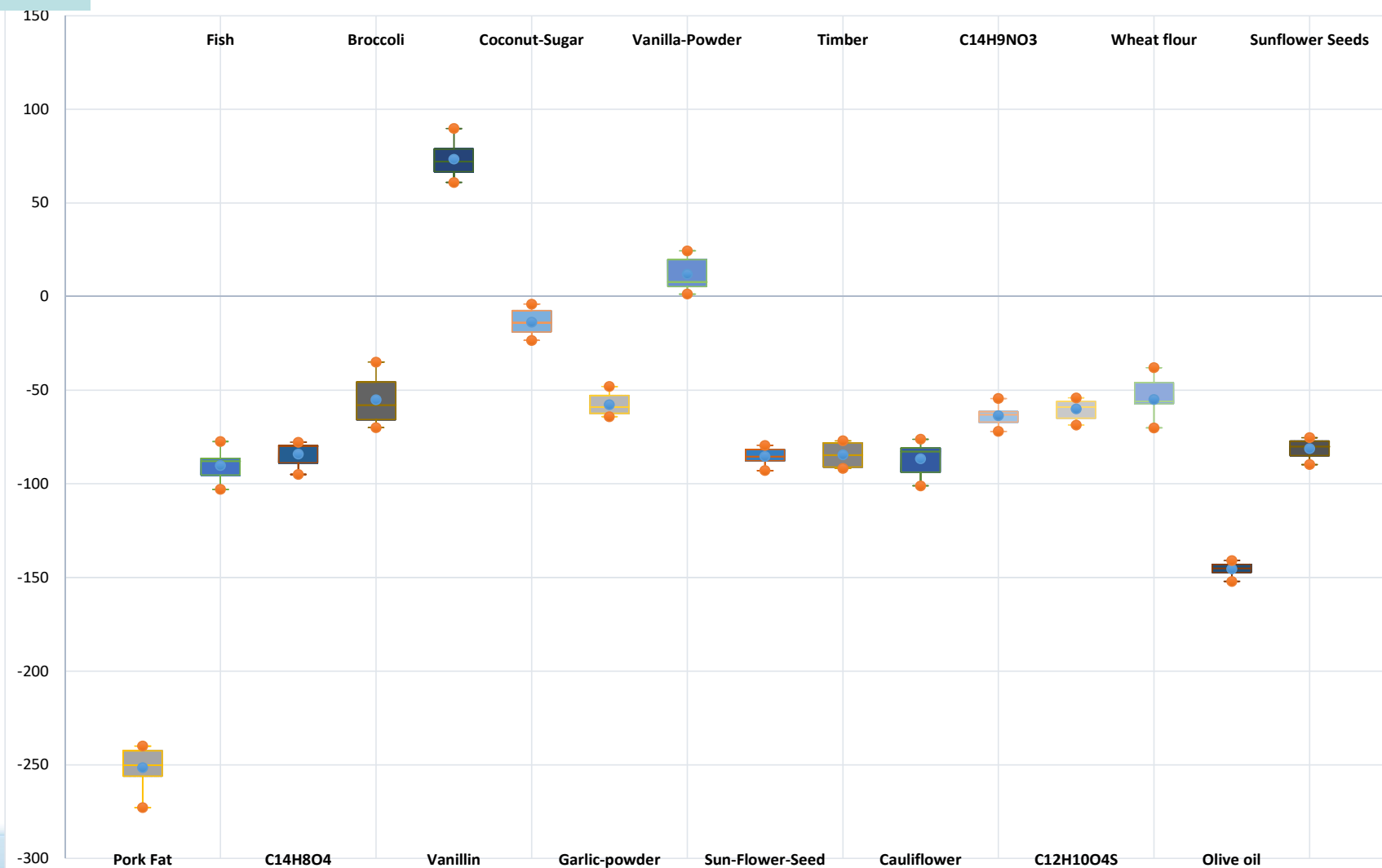




**Aver.**  
**Stdv.**  
**Num.**

|        |       |       |       |      |       |       |      |       |       |       |       |       |       |        |       |
|--------|-------|-------|-------|------|-------|-------|------|-------|-------|-------|-------|-------|-------|--------|-------|
| -251,4 | -90,2 | -84,1 | -55,0 | 73,4 | -13,7 | -57,8 | 12,0 | -85,3 | -84,4 | -86,5 | -63,5 | -60,0 | -54,9 | -145,4 | -81,2 |
| 11,6   | 7,4   | 7,4   | 13,9  | 10,9 | 7,2   | 6,0   | 8,1  | 4,1   | 6,4   | 9,4   | 5,7   | 5,5   | 11,3  | 3,9    | 5,1   |
| 7      | 7     | 7     | 7     | 7    | 10    | 9     | 7    | 8     | 8     | 8     | 9     | 9     | 9     | 8      | 8     |

7,5 +/- 2,9 ‰



***Thank you very much for your attention***

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