### Supplementary Material

**Table S1.** Post-harvest evolution of quality parameters (mean) of “Braeburn” and “Cripps Pink” apples from the harvest date 2 (HT2) during long-term CA storage.

| Variety     | “Braeburn” | “Cripps Pink” |
|-------------|------------|---------------|
| analysis time-point | 0  | 7  | 15 | 21 | 28 | 32 | 0  | 6  | 15 | 20 | 27 | 30 |
| sample number | 30 | 30 | 29 | 30 | 29 | 30 | 30 | 30 | 29 | 30 | 29 | 29 |
| weight [g] * | 209.5 | 205.8 | 211.8 | 195.4 | 201.2 | 204.2 | 211.1 | 214.0 | 207.8 | 214.3 | 213.0 | 203.9 |
| total juice [mL] * | 123.8 | 127.8 | 99.5 | 94.2 | 117.4 | 117.4 | 129.1 | 120.1 | 107.2 | 103.2 | 111.8 | 111.8 |
| pH # | 3.54 | 3.52 | 3.62 | 3.58 | 3.65 | 3.49 | 3.59 | 3.70 | 3.67 | 3.77 | 3.84 | 3.84 |
| TA [g/L malic acid] # | 5.3 | 5.2 | 4.8 | 4.7 | 4.4 | 5.1 | 4.6 | 3.9 | 3.9 | 3.4 | 3.2 | 3.2 |
| TSS [°Brix] * | 9.9 | 12.4 | 12.1 | 12.1 | 12.7 | 13.3 | 11.9 | 12.8 | 12.2 | 13.2 | 12.9 | 12.9 |
| F_f [N] * | 86.7 | 82.6 | 76.8 | 71.5 | 69.3 | 69.3 | 72.1 | 105.0 | 93.2 | 84.5 | 83.9 | 81.6 |
| D [mm] * | 3.55 | 3.56 | 3.33 | 3.51 | 3.25 | 3.63 | 4.90 | 4.60 | 5.20 | 4.33 | 4.30 | 4.30 |
| W_f [J] * | 0.18 | 0.16 | 0.15 | 0.15 | 0.13 | 0.16 | 0.29 | 0.25 | 0.22 | 0.21 | 0.20 | 0.20 |
| F_Lc [N] * | 63.2 | 60.4 | 58.3 | 54.9 | 51.0 | 55.2 | 92.2 | 77.0 | 66.3 | 63.2 | 57.5 | 57.5 |
| S [N/mm] * | 39.6 | 47.5 | 32.3 | 37.0 | 47.7 | 35.8 | 37.0 | 32.2 | 55.6 | 28.1 | 31.0 | 31.0 |

Means with different superscript letters in the same row differ significantly (p < 0.05) within one cultivar; * ANOVA followed by the Tukey test; # Kruskal-Wallis test followed by the Mann-Whitney U test with Bonferroni correction.
Table S2. Post-harvest evolution of quality parameters (mean) of “Braeburn” and “Cripps Pink” apples from the harvest date 3 (HT3) during long-term CA storage.

| Variety      | analysis time-point | “Braeburn” | “Cripps Pink” |
|--------------|---------------------|------------|--------------|
|              | 0       | 7       | 15      | 21      | 28      | 32      | 0       | 6       | 15      | 20      | 27      | 30      |
| sample number| 30      | 28      | 28      | 29      | 27      | 29      | 30      | 30      | 30      | 30      | 30      | 29      |
| weight [g] * | 208.8   | 214.3   | 220.9   | 218.9   | 214.2   | 213.2   | 215.4   | 220.4   | 220.9   | 215.8   | 205.7   | 202.7   |
| total juice [mL] * | 127.1 a | 130.7 a | 115.6 a,b | 101.4 b | 121.5 a,b | 128.1 a | 130.6 a | 115.7 a,b | 104.3 b | 111.7 b |
| pH #         | 3.58 a | 3.62 a,b | 3.65 b,c | 3.62 a,b | 3.69 c | 3.81 d | 3.49 a | 3.56 b | 3.67 c | 3.66 c | 3.82 d | 3.85 d |
| TA [g/L malic acid] # | 4.6 a | 4.8 a | 4.5 a | 4.5 a,b | 4.1 b | 3.4 c | 5.4 a | 4.8 b | 4.2 c | 4.0 c | 3.3 d | 3.3 d |
| TSS [°Brix] * | 12.2   | 13.2   | 12.3   | 12.7   | 13.0   | 12.9   | 13.2 a | 12.6 b | 13.1 a,b | 12.9 a,b | 13.0 a,b | 12.6 b |
| F₀ [N] *     | 87.2 a | 79.6 a,b | 79.0 b | 72.6 b,c | 67.5 c | 65.0 c | 94.4 a | 92.9 a | 85.6 b | 79.7 b,c | 74.1 c |
| D [mm] *     | 3.68 a,b | 3.75 a | 3.39 a,b | 3.40 a,b | 3.27 b | 3.54 a,b | 5.01 a | 4.99 a | 6.22 b | 4.74 a | 4.51 a |
| W₀ [J] *     | 0.18 a | 0.17 a,b | 0.16 a,b,c | 0.15 b,c | 0.13 c | 0.14 b,c | 0.28 a | 0.28 a | 0.28 a | 0.23 b | 0.20 b |
| Fᵢₚ [N/mm] * | 63.8 a | 60.8 a | 58.9 a,b | 53.5 b,c | 52.3 b,c | 52.0 c | 84.2 a | 82.7 a,b | 76.1 b,c | 70.4 c | 62.2 d |
| S [N/mm] *   | 33.5 a | 44.6 b | 32.3 a | 35.0 a | 54.4 b | 34.8 a | 36.9 a | 32.1 b | 30.9 b | 31.2 | 28.3 |
| glucose [g/100 g] # | 0.8 a | 1.0 a,b | 1.0 a,b | 1.0 b | 1.3 b | 0.4 a | 0.5 a | 1.1 b | 0.5 a | 0.5 a |
| xylose [g/100 g] * | 0.02 a | 0.03 a,b | 0.05 c | 0.05 b,c | 0.03 a,b | 0.02 a | 0.04 a,b | 0.06 b,c | 0.05 b,c | 0.06 c |
| sucrose [g/100 g] # | 2.1 a | 1.6 a,b | 1.9 a,b | 1.2 b | 3.3 c | 3.5 a | 3.8 a | 2.4 a | 2.1 b | 2.3 b |
| fructose [g/100 g] * | 3.0 a | 3.0 a | 3.0 a | 2.9 a | 1.3 b | 2.7 a,b,c | 3.1 b,c | 3.3 c | 2.2 a | 2.5 a,b |

Means with different superscript letters in the same row differ significantly ($p < 0.05$) within one cultivar; * ANOVA followed by the Tukey test; # Kruskal-Wallis test followed by the Mann-Whitney $U$ test with Bonferroni correction.
Figure S1. Raw NIR spectra (A) and spectra pretreated by de-trending and first derivative Savitzky-Golay (B) for 1049 apples.
Figure S2. PCA loadings plot of NIR data acquired from the complete data set (515 “Braeburn” and 534 “Cripps Pink” apples).