

**Supplemental Data for:**

Döring J, Collins C, Frisch M and Kauer R. 2019.

Organic and biodynamic viticulture affect biodiversity and properties of vine and wine: A systematic quantitative review.

Am J Enol Vitic 70:221-242. doi: 10.5344/ajev.2019.18047.

**Supplemental Table 1** Characteristics of the studies included in the meta-analyses and meta-regressions.

| Authors                  | Study years | Number of study years included | Location      | Varieties                                      |
|--------------------------|-------------|--------------------------------|---------------|--|
| Bagheri et al. (2015)    | 2012-2013   | 2                              | South Africa  | Cabernet Sauvignon                             |
| Botelho et al. (2015)    | 2011-2013   | 3                              | Italy         | Sangiovese                                     |
| Collins, unpublished     | 2009-2014   | 6                              | Australia     | Cabernet Sauvignon                             |
| Corvers (1994)           | 1990-1992   | 3                              | Germany       | Riesling, Kerner                               |
| Danner (1985)            | 1979-1983   | 5                              | Austria       | Grüner Veltliner                               |
| Döring et al. (2015)     | 2010-2012   | 3                              | Germany       | Riesling                                       |
| Döring unpublished       | 2013-2016   | 4                              | Germany       | Riesling                                       |
| Guzzon et al. (2015)     | 2014        | 1                              | Italy         | Pinot blanc and Riesling                       |
| Hofmann (1991)           | 1987-1989   | 3                              | Germany       | Riesling, Kerner                               |
| Kauer (1994)             | 1989-1991   | 3                              | Germany       | Riesling, Müller-Thurgau                       |
| Linder et al. (2006)     | 1998-2005   | 8                              | Switzerland   | Chasselas                                      |
| Malusà et al. (2004)     | 2000        | 1                              | Italy         | Grignolino                                     |
| MeiBner (2015)           | 2006-2009   | 4                              | Germany       | Riesling                                       |
| Picone et al. (2016)     | 2009, 2011  | 2                              | Italy         | Sangiovese                                     |
| Pool and Robinson (1995) | 1990-1994   | 5                              | United States | Concord, Elvira, Seyval                        |
| Reeve et al. (2005)      | 2000-2003   | 4                              | United States | Merlot   |
| Wheeler and Crisp (2011) | 1992-2006   | 15                             | Australia     | Cabernet Sauvignon, Merlot, Shiraz, Chardonnay |

**Supplemental Table 2** Results of the balanced fixed factorial analysis of variance (ANOVA) and Tukey's test for the analysis of pruning weight, yield, and total soluble solids in juice comparing integrated or conventional and organic or biodynamic viticulture.

| Parameter                | Treatment <sup>a</sup> | Int <sup>b</sup><br>(mean ± sd) | Org <sup>c</sup><br>(mean ± sd) | Continent | Interactions |
|--------------------------|------------------------|---------------------------------|---------------------------------|-----------|--------------|
| Pruning wt (t/ha)        | ***                    | 3.22 ± 0.79 a <sup>d</sup>      | 2.55 ± 0.71 b                   | ***       | ns           |
| Yield (t/ha)             | **                     | 11.94 ± 5.84 a                  | 9.92 ± 4.99 b                   | ***       | ns           |
| Juice sugar concn (Brix) | ns                     | 18.77 ± 3.59 - <sup>e</sup>     | 18.91 ± 3.67 - <sup>e</sup>     | ***       | ns           |

<sup>a</sup>\*\*\* and <sup>b</sup>\*\*\* indicate statistical significance ( $p < 0.01$  and  $p < 0.001$ ) of the main effects determined by ANOVA (ns = not significant).

<sup>b</sup>Int = integrated or conventional treatment.

<sup>c</sup>Org = organic or biodynamic treatment.

<sup>d</sup>Different letters indicate statistically significant differences ( $p < 0.05$ ) for the fixed factor management system determined by Tukey's test.

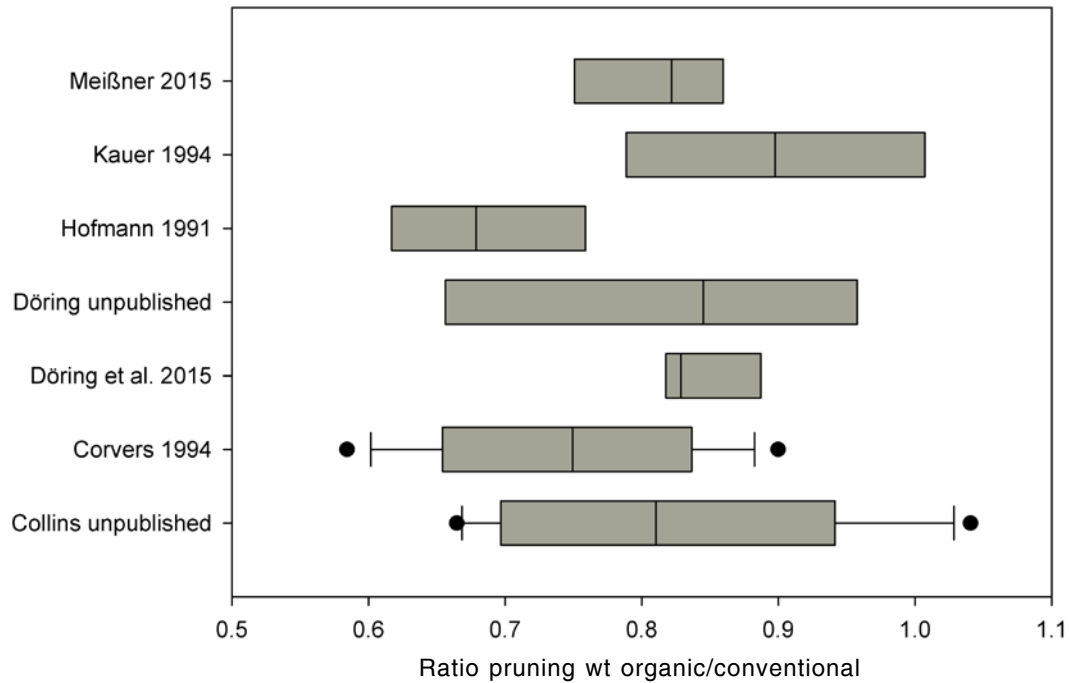
<sup>e</sup>No significant differences occurred between juice sugar concentration of juices from integrated and organic management.

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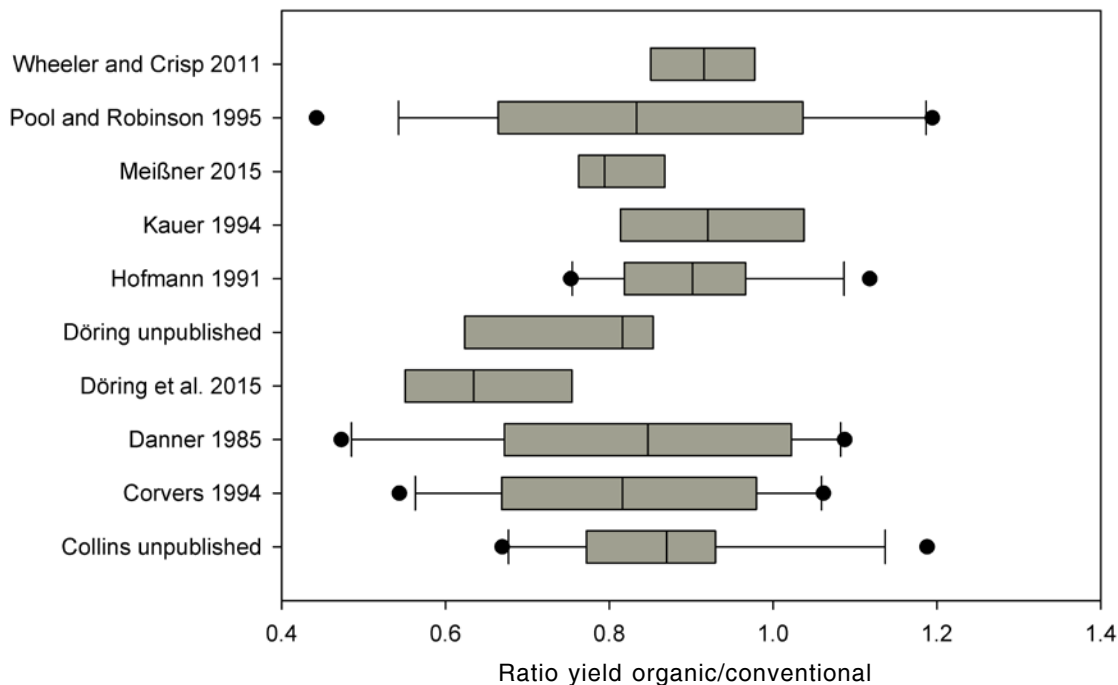
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**Supplemental Figure 1** Ratio of pruning weight under organic compared to conventional management for every single study included in the meta-analysis and meta-regression. Bars express the distribution of the ratio of pruning weight for organic compared to conventional viticulture for every single study. Median Z with percentile Q0%, Q25%, Q75%, and Q100%, respectively (Köhler et al. 2007). Outliers are expressed as dots.



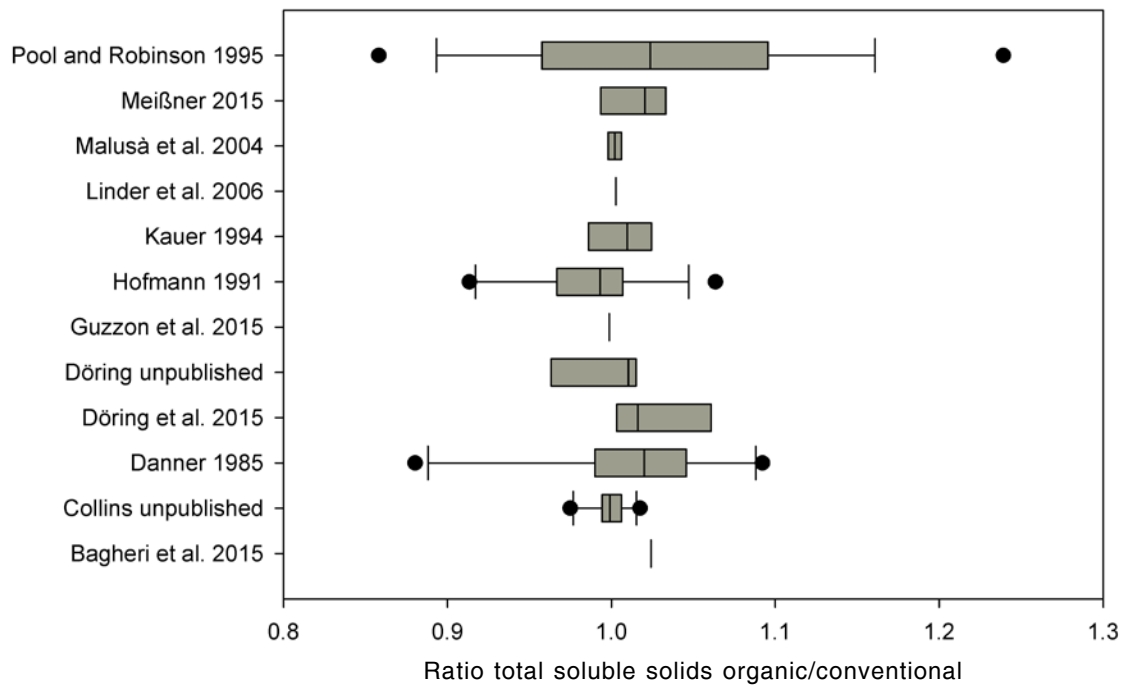
**Supplemental Figure 2** Ratio of yield under organic compared to conventional management for every single study included in the meta-analysis and meta-regression. Bars express the distribution of the ratio of yield for organic compared to conventional viticulture for every single study. Median Z with percentile Q0%, Q25%, Q75%, and Q100%, respectively (Köhler et al. 2007). Outliers are expressed as dots.

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**Supplemental Figure 3** Ratio of total soluble solids under organic compared to conventional management for every single study included in the meta-analysis and meta-regression. Bars express the distribution of the ratio of total soluble solids in juice for organic compared to conventional viticulture for every single study. Median Z with percentile Q0%, Q25%, Q75%, and Q100%, respectively (Köhler et al. 2007). Outliers are expressed as dots.