

Table S1. Results of mixed-model analyses (from the MIXED procedure in SAS, with "Satterthwaite" option). For fixed effects, F-statistics, denominator degrees of freedom, and probabilities are given (numerator df is always 1). For random effects, restricted maximum-likelihood estimates of variance components are given. Data in Figures 2 and 3 are reported without analysis, due to the lack of overlap of line means.

Trait	Figure	Effect	Fixed Effects			Random Effects	
			F	den df	Prob	Variance	SE
Ethanol concentration	4A	Region	67.2	11.2	<b>&lt;0.0001</b>		
		Sex	2.62	2.13	0.24		
		R x S	8.85	11.2	<b>0.01</b>		
		Assay date				0	
		R x A				0	
		S x A				0.011	0.012
		R x S x A				0	
		Within				0.0083	0.0035
Ethanol concentration	4B	Region	16.92	12	<b>0.0014</b>		
		Sex	4.26	12	0.06		
		R x S	1.33	12	0.27		
		Within				0.028	0.012
Ethanol resistance	5A	Region	21.82	4.07	<b>0.009</b>		
		Sex	2.00	2.83	0.26		
		R x S	0.13	2.83	0.75		
		Line(R)				0.029	0.026
		S x L(R)				0.001	0.013
		Within				0.051	0.013
Ethanol resistance	5B	Region	196.7	32	<b>&lt;0.0001</b>		
		Sex	1.07	32	0.31		
		R x S	14.87	32	<b>0.0005</b>		
		Within				0.033	0.008
Ethanol concentration	6A	Region	0.14	6	0.72		
		Sex	12.29	6	<b>0.01</b>		
		R x S	0.03	6	0.88		
		Line(R)				0	
		S x L(R)				0.004	0.006
		Within				0.021	0.006
Ethanol concentration	6B	Region	0.67	20	0.42		
		Sex	3.22	20	0.09		
		R x S	6.83	20	<b>0.02</b>		
		Within				0.038	0.012
Acetic acid resistance	7A	Region	38.5	20	<b>&lt;0.0001</b>		
		Sex	2.06	20	0.17		
		R x S	0.03	20	0.87		
		Line(R)				0	
		S x L(R)				0	
		Within				0.13	0.04

Acetic acid resistance	7B	<u>Region</u>	72.7	20	<b>&lt;0.0001</b>			
		<u>Sex</u>	0.00	20	0.95			
		R x S	9.51	20	<b>0.006</b>			
		Within				0.045	0.014	
Acetic acid, Adh null	8A	<u>Region</u>		20	<b>&lt;0.0001</b>			
		<u>Sex</u>		20	<b>0.04</b>			
		R x S		20	0.09			
		<u>Assay date</u>					0	
		R x A					0	
		S x A					0	
		R x S x A					0	
Within					0.058	0.018		
Ethanol, Adh null	8B	<u>Region</u>	0.00	19	0.96			
		<u>Sex</u>	9.87	19	<b>0.005</b>			
		R x S	0.06	19	0.81			
		<u>Assay date</u>					0.0005	0.007
		R x A					0	
		S x A					0	
		R x S x A					0	
Within					0.051	0.016		