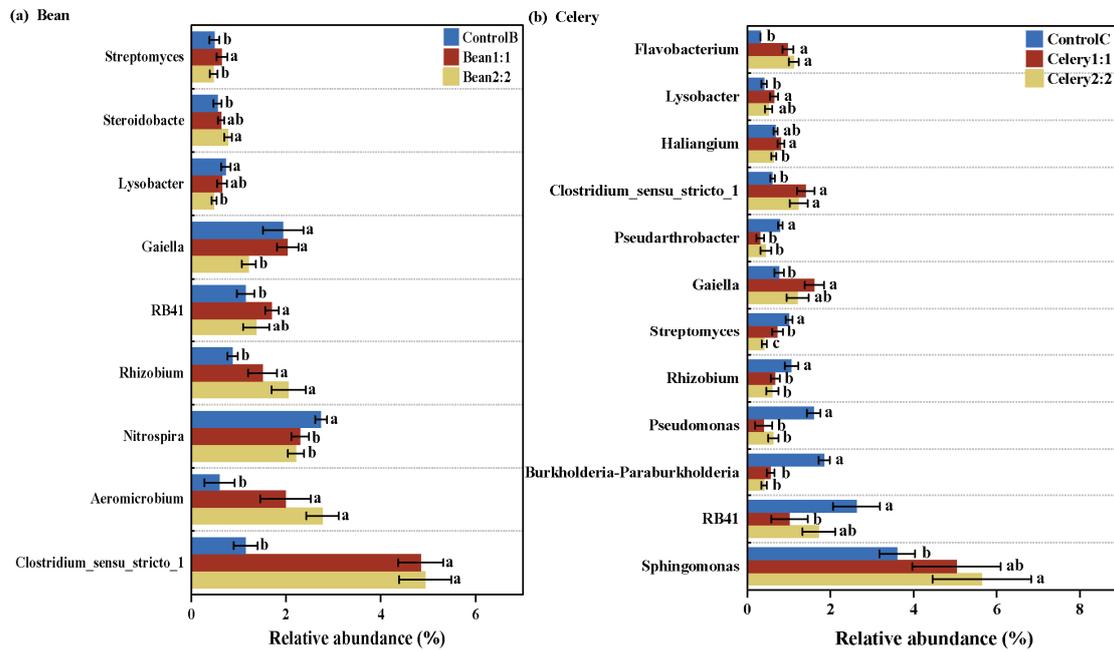
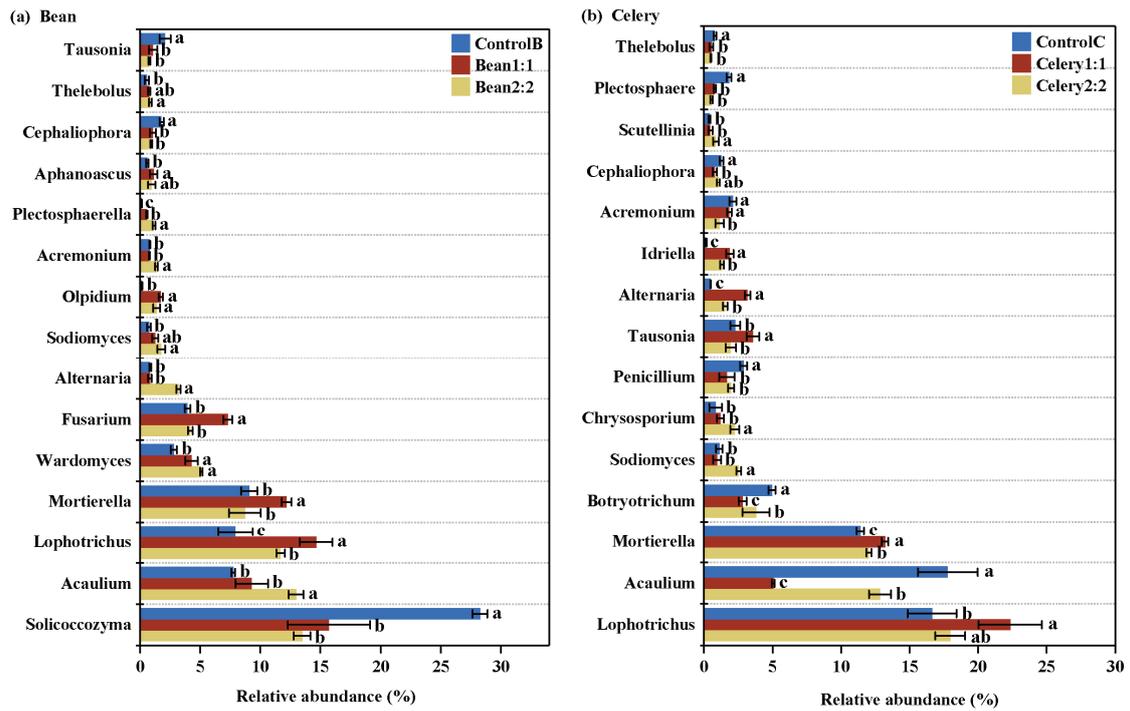


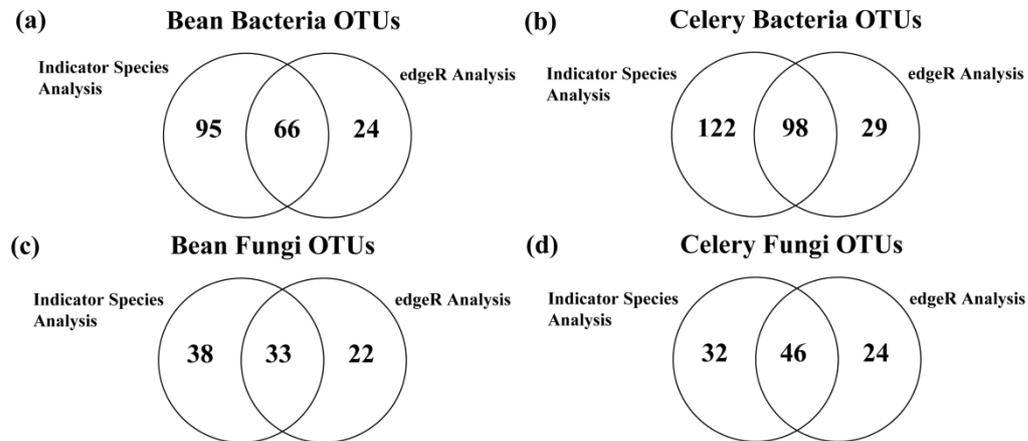
**Figure S1** Taxonomic profiles of bacteria (a) and fungi (b) communities at phylum level. Bacteria and fungi phyla with relative abundances lower than 1% were summarized with ‘other’.



**Figure S2** Bacterial genus with average relative abundances > 0.5% altered by rotational strip intercropping of bean (a) and celery (b). Values (mean  $\pm$  standard error) in the same column followed by different letters are significantly different ( $p < 0.05$ , Tukey's HSD test).



**Figure S3** Fungi genus with average relative abundances > 0.5% altered by rotational strip intercropping of bean (a) and celery (b). Values (mean ± standard error) in the same column followed by different letters are significantly different ( $p < 0.05$ , Tukey's HSD test).



**Figure S4** The Venn Diagram represent sensitive bacteria and fungi OTUs numbers in bean (a, b) and celery (c, d) samples.

**Table S1 Effects of rotational strip bean and celery intercropping on *Pn* and Illuminance.**

	2020Autumn		2021Spring		2021Autumn	
	Illuminance ( $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ )	<i>Pn</i> ( $\mu\text{mol}(\text{CO}_2)\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ )	Illuminance ( $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ )	<i>Pn</i> ( $\mu\text{mol}(\text{CO}_2)\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ )	Illuminance ( $\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ )	<i>Pn</i> ( $\mu\text{mol}(\text{CO}_2)\cdot\text{m}^{-2}\cdot\text{s}^{-1}$ )
ControlB	597.5+18.13a	14.3+0.36c	460.0+23.75b	11.3+0.66c	472.5+18.13b	4.8+0.35a
Bean1:1	663.8+26.38a	18.8+0.20a	540.0+15.00a	16.8+1.06a	538.8+26.38a	4.3+0.15a
Bean2:2	547.5+32.63a	16.3+0.35b	478.8+28.51a	14.0+0.50b	422.5+32.63b	4.7+0.23a
ControlC	708.8+43.13a	15.2+1.23a	671.3+23.8a	10.9+0.70b	458.8+43.13a	4.9+0.32b
Celery1:1	113.8+12.00c	15.6+1.08a	327.5+15.63c	14.3+0.78a	76.3+12.00c	6.6+0.26a
Celery2:2	200.0+13.00b	16.3+1.18a	431.3+47.9b	15.0+0.61a	137.5+13.00b	5.2+0.25b

Values (mean  $\pm$  standard error) in the same column followed by different letters are significantly different ( $p < 0.05$ , Tukey's HSD test)