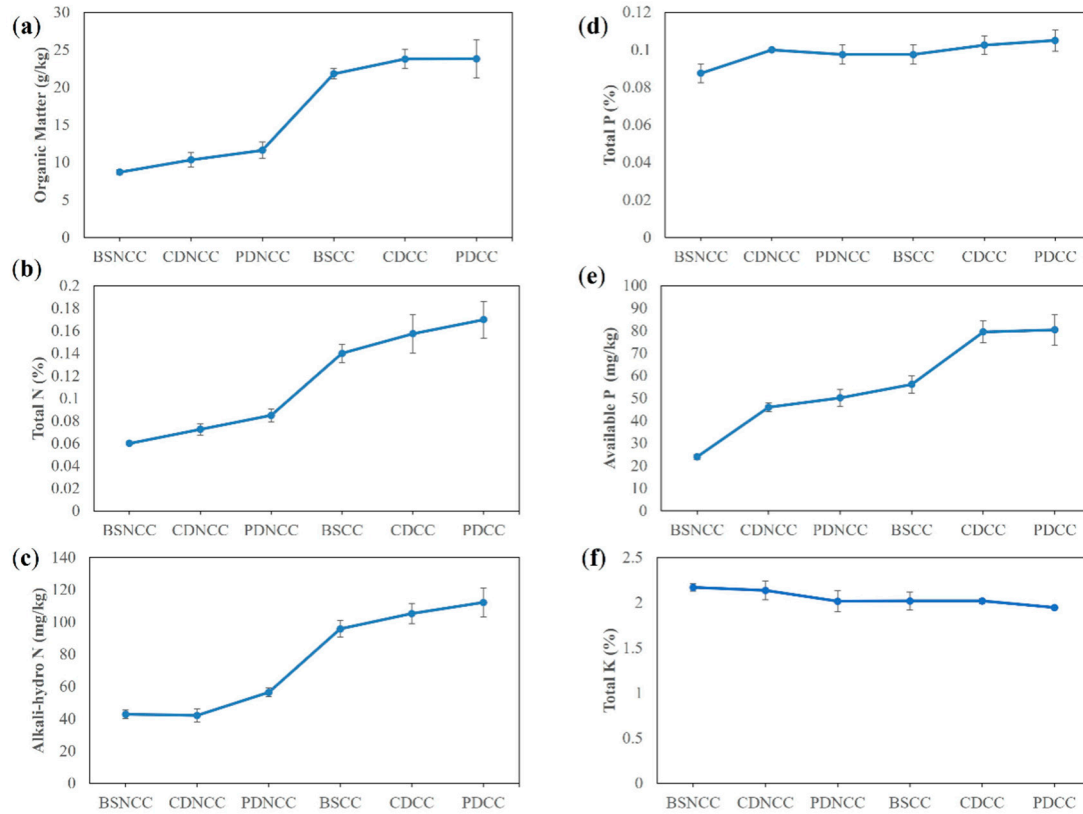


# Supporting Information

## Supplementary figures



**Figure S1.** Line charts of physicochemical characteristics significantly related to morel primordial yield during black morel cultivation. (a) Organic Matter; (b) Total N; (c) Alkali-hydro N; (d) Total P; (e) Available P; (f) Total K

## Supplementary tables

**Table S1.** The number of high-quality sequences in every replicate.

Sample Name	Fungi high-quality sequences
BSNCCA	64,532
BSNCCB	63,617
BSNCCC	69,617
BSNCCD	66,821
BSCCA	65,567
BSCCB	62,457
BSCCC	60,797
BSCCD	69,778
BSCCiA	60,690
BSCCiB	60,411

BSCCiC	62,218
BSCCiD	69,280
CDNCCA	64,665
CDNCCB	69,829
CDNCCC	61,906
CDNCCD	66,996
CDCCA	65,636
CDCCB	66,848
CDCCC	67,164
CDCCD	66,195
CDCCiA	69,294
CDCCiB	66,655
CDCCiC	60,439
CDCCiD	65,986
PDNCCA	66,035
PDNCCB	69,384
PDNCCC	64,454
PDNCCD	65,536
PDCCA	66,816
PDCCB	62,383
PDCCC	61,792
PDCCD	69,714
PDCCiA	68,599
PDCCiB	67,020
PDCCiC	62,169
PDCCiD	61,345
<b>Sum</b>	<b>2352645</b>
<b>Min</b>	<b>60411</b>
<b>Max</b>	<b>69829</b>
<b>Median</b>	<b>65811</b>

**Table S2.** Keystone OTUs identified in soil fungal communities documented with taxonomy assignments, stage, Modules, OTU IDs, degree of co-occurrence values, eigenvector centrality, group, whether or not csOTU and top50.

Stage	Modules	Node name	Degree	Eigne vector _centr ality	Group	Phylum	Class	Order	Family	Genus	Species	csOTU	top50
BS	2	OTU_173	106	0.9076	BSNCC	Ascomy cota	Dothideo mycetes	Pleospor ales	Phaeospha eriaceae	Septoriella	Septorie lla_phra gmitis	Yes	+
	2	OTU_36	95	0.9523	BSNCC	Ascomy cota	Sordario mycetes	Hypocre ales	Nectriaceae	Gibberella	Gibberel la_acum inata	Yes	
	2	OTU_96	84	0.9493	BSNCC	Ascomy cota	Leotiomy cetes	Helotial es	Helotiaceae	unassigned	unassign ed	Yes	
	2	OTU_94	97	0.9047	BSNCC	Ascomy cota	unassigne d	unassign ed	unassigned	unassigned	unassign ed	Yes	
	2	OTU_122	96	1.0000	BSNCC	unassign ed	unassigne d	unassign ed	unassigned	unassigned	unassign ed	Yes	

	2	OTU_183	98	0.9181	BSNCC	unassig ned	unassigne d	unassig ned	unassigned	unassigned	unassig ned	Yes	
	2	OTU_23	89	0.9314	BSNCC	unassig ned	unassigne d	unassig ned	unassigned	unassigned	unassig ned	Yes	+
	2	OTU_231	78	0.9287	BSNCC	unassig ned	unassigne d	unassig ned	unassigned	unassigned	unassig ned	Yes	
	2	OTU_82	99	0.9294	BSNCC	unassig ned	unassigne d	unassig ned	unassigned	unassigned	unassig ned	Yes	
	1	OTU_103 2	93	0.9395	BSCC_B SCCi	unassig ned	unassigne d	unassig ned	unassigned	unassigned	unassig ned	Yes	
	1	OTU_25	89	0.9243	BSCCi	unassig ned	unassigne d	unassig ned	unassigned	unassigned	unassig ned	Yes	+
	1	OTU_62	95	0.9144	BSCC_B SCCi	unassig ned	unassigne d	unassig ned	unassigned	unassigned	unassig ned	Yes	
	1	OTU_64	95	0.9057	BSCC_B SCCi	unassig ned	unassigne d	unassig ned	unassigned	unassigned	unassig ned	Yes	
	1	OTU_72	96	0.9075	BSCC_B SCCi	unassig ned	unassigne d	unassig ned	unassigned	unassigned	unassig ned	Yes	
	1	OTU_75	95	0.9503	BSCC_B SCCi	unassig ned	unassigne d	unassig ned	unassigned	unassigned	unassig ned	Yes	
CD	1	OTU_100	75	0.9999	Mortiere CDNCCIlomycot a	Mortierell omycetes	Mortiere llales	Mortierella ceae	unassigned		unassig ned	Yes	
	1	OTU_579	98	0.9001	CDNCC	Ascomy cota	unassigne d	unassig ned	unassigned	unassigned	unassig ned	Yes	
	1	OTU_59	74	0.9201	CDNCC	Ascomy cota	Dothideo mycetes	Pleospor ales	Phaeospha eriaceae	unassigned	unassig ned	Yes	
	1	OTU_65	86	0.9425	CDNCC	unassig ned	unassigne d	unassig ned	unassigned	unassigned	unassig ned	Yes	
PD	1	OTU_137 8	75	0.9501	Mortiere PDNCCIlomycot a	Mortierell omycetes	Mortiere llales	Mortierella ceae	Mortierella		unassig ned	Yes	
	2	OTU_47	82	0.9135	PDCC_ PDCCi	Ascomy cota	Eurotiom ycetes	Chaetot hyriales	Herpotrichi ellaceae	unassigned	unassig ned	Yes	
	2	OTU_78	80	0.9402	PDCC_ PDCCi	Ascomy cota	Sordario mycetes	Sordaria les	Chaetomia ceae	Dichotomopilus	unassig ned	Yes	
	2	OTU_121	80	0.9952	PDCC_ PDCCi	unassig ned	unassigne d	unassig ned	unassigned	unassigned	unassig ned	Yes	