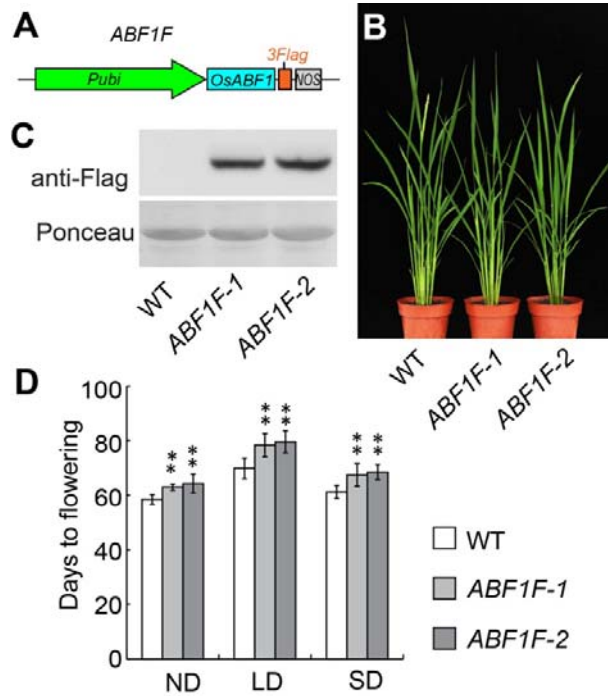
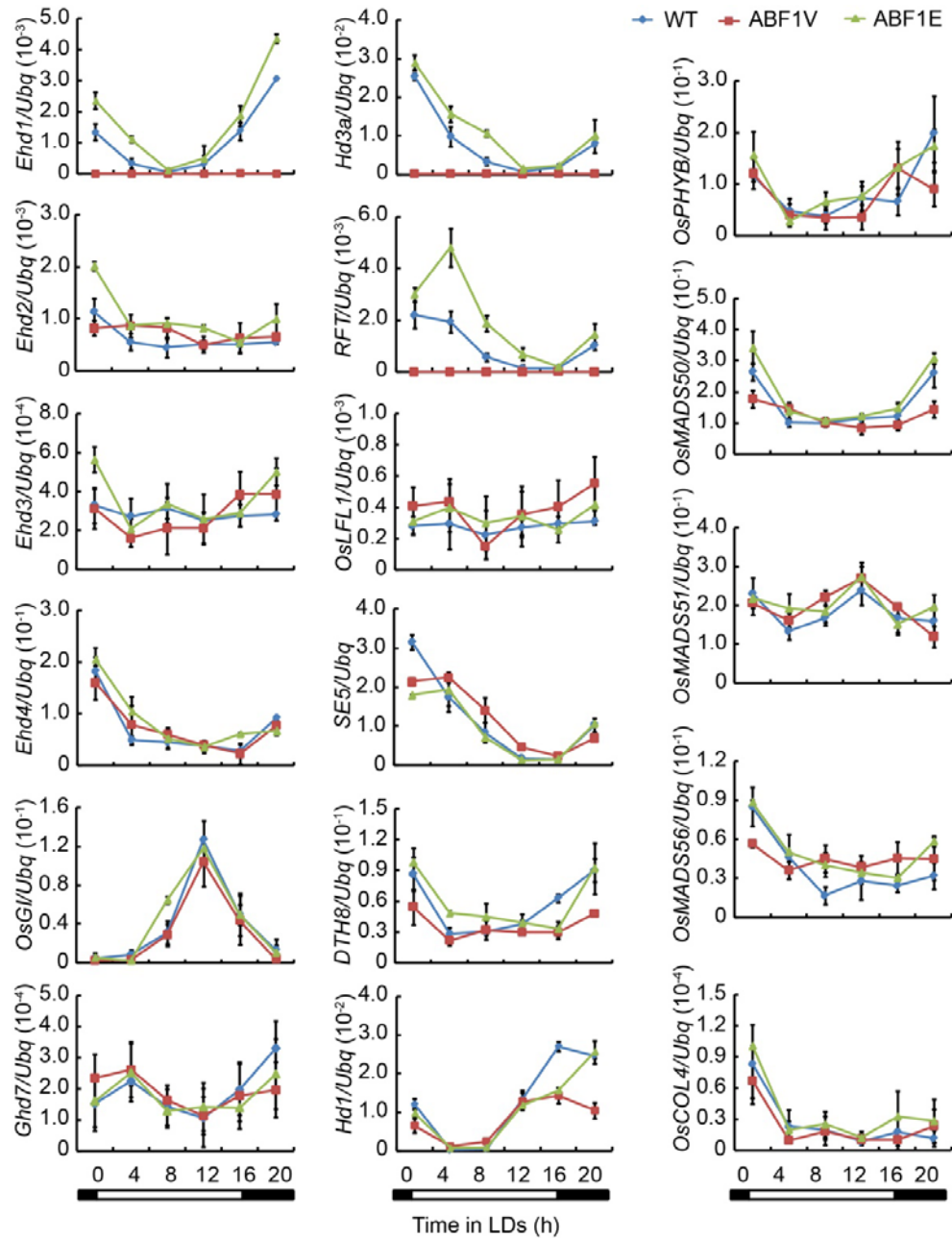


Supplemental Data

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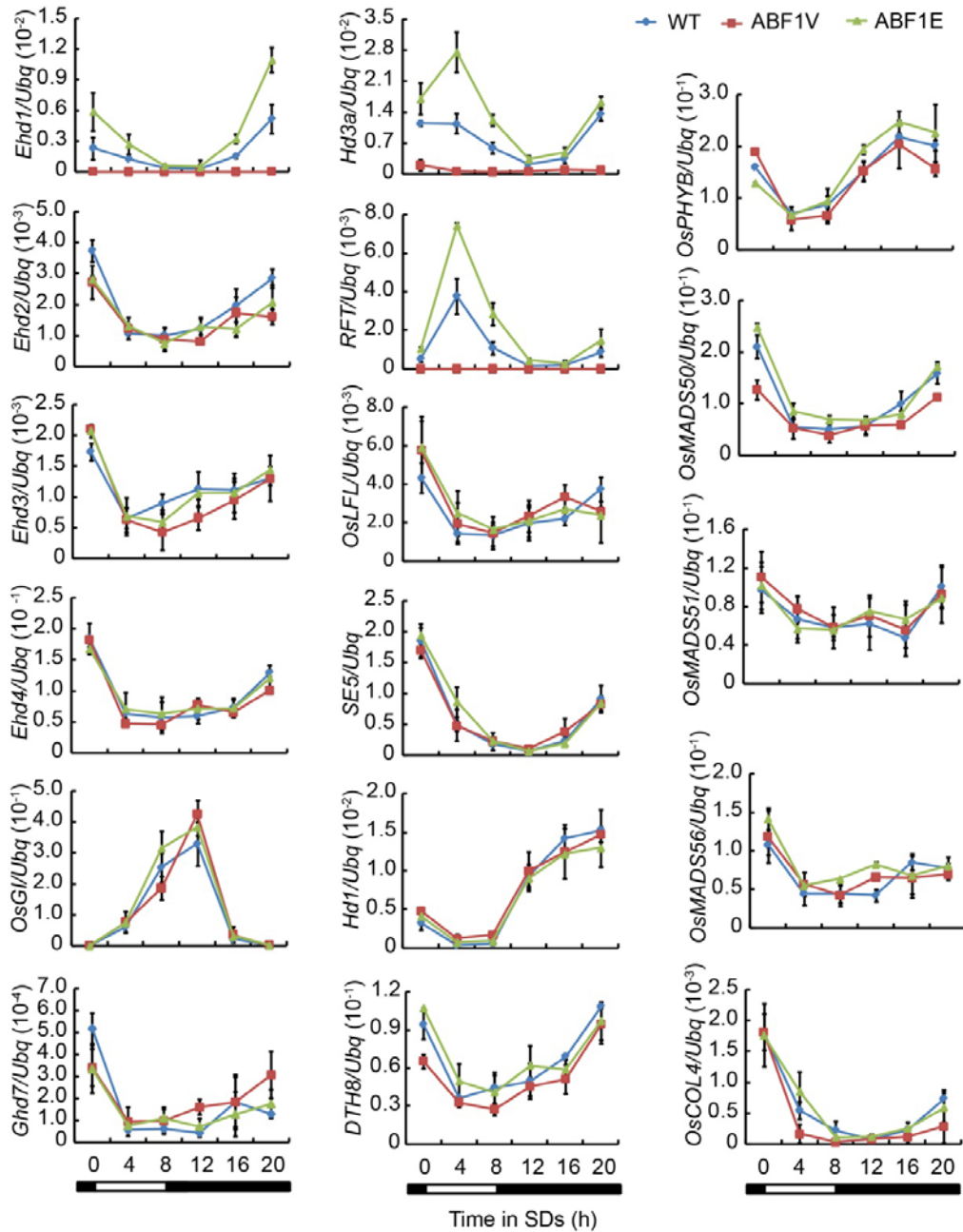


6
7 **Supplemental Figure S1.** Overexpression of *OsABF1* confers later flowering
8 phenotype. A, Diagrams of the *OsABF1* overexpression construct. *ABF1F*,
9 *Pubi:OsABF1-3Flag*. B, Representative flowering image of indicated genotypes
10 under NDs. C, Protein expression analysis of *ABF1F* in indicated lines. The
11 immunoblot was probed with anti-Flag antibody. D, Flowering days of each genotype
12 grown under NDs, LDs or SDs. Mean values \pm s.d. were shown. The value of each
13 genotype was compared to that of WT (Student's *t* tests, ***P* < 0.01, n=20).
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Supplemental Figure S2. Transcriptional levels of flowering-associated genes under LDs. Plants were grown for 4 weeks. Samples were collected every 4 hours from the beginning of light period. Three biological replicates of qRT-PCR experiment were performed using *Ubq* gene as the internal control and the representative results were shown. Values were mean \pm s.d. (n = 3).

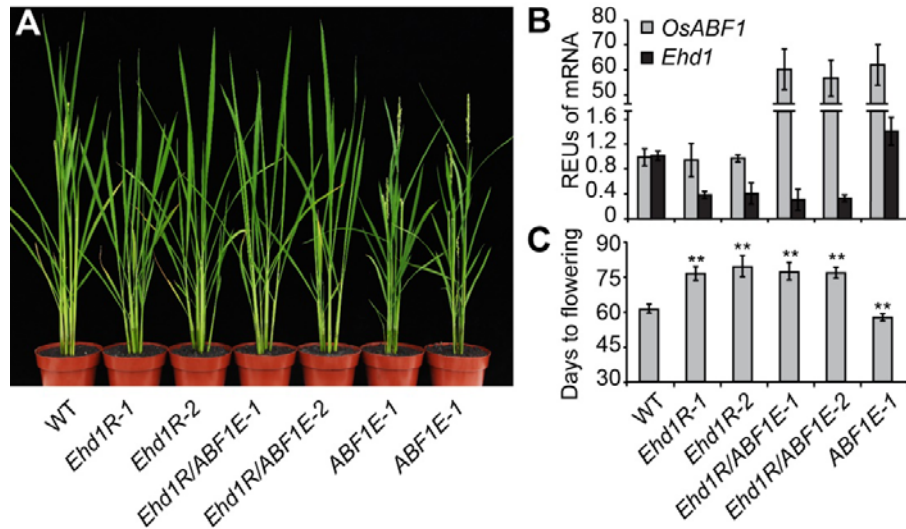


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25 **Supplemental Figure S3.** Transcriptional levels of flowering-associated genes under
 26 SDs. Plants were grown for 4 weeks. Samples were collected every 4 hours from the
 27 beginning of light period. Three biological replicates of qRT-PCR experiment were
 28 performed using *Ubq* gene as the internal control and the presentative results were
 29 shown. Values were mean \pm s.d. (n = 3).

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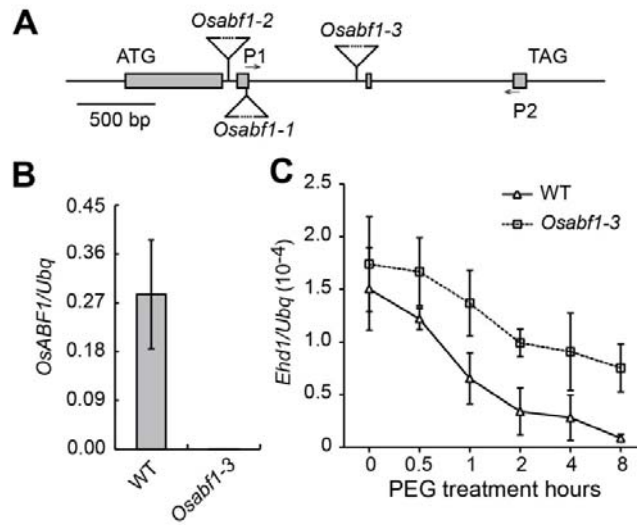


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33 **Supplemental Figure S4.** Knockdown of *Ehd1* suppresses the early flowering
 34 phenotype of *ABF1E*. A, The flowering phenotypes of indicated genotypes grown
 35 under NDs. All plants are in Kita-ake background. *Ehd1R* indicates the *Ehd1-RNAi*
 36 transgenic line in T1 generation. *Ehd1R/ABF1E-1* and *Ehd1R/ABF1E-2* were two
 37 independent T1 lines generated by stacking transformation of *Ehd1-RNAi* construct
 38 into *ABF1E-1* homozygous line. B, qRT-PCR analysis of *OsABF1* or *Ehd1* mRNA
 39 expression in each genotype. The latest fully expanded leaves of 4-week-old seedlings
 40 grown under LDs were sampled at the end of dark period. The relative expression
 41 units (REUs) were calculated by the formula: [(*gene/ubq*) of each genotype]/
 42 [(*gene/ubq*) of WT]. C, Statistic analysis of flowering time of indicated genotypes as
 43 in A.

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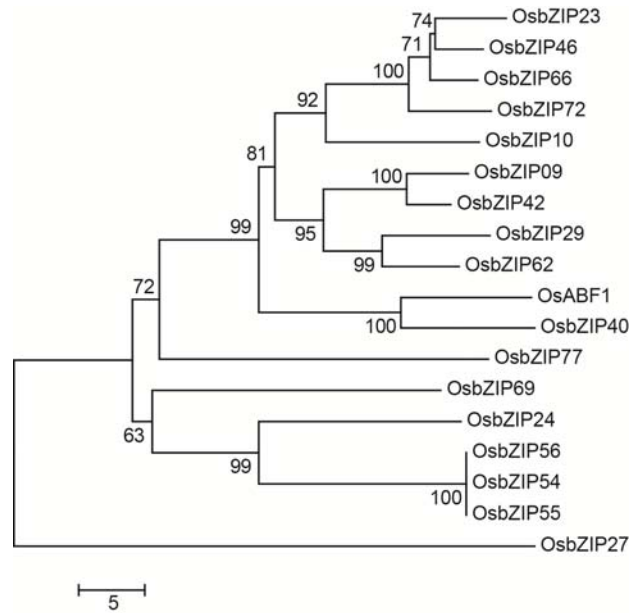


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47 **Supplemental Figure S5.** Analysis of *Ehd1* mRNA expression in *Osabf1-3* mutant. A,
 48 Schematic diagram showing the T-DNA insertion positions in *Osabf1-1*, *Osabf1-2* and
 49 *Osabf1-3* mutant alleles. The boxes and solid lines present exons and introns
 50 respectively. B, Analysis of *OsABF1* mRNA level in WT and *Osabf1-3* by qRT-PCR
 51 using a pair of primers P1 and P2 as indicated in A. C, Dynamic transcription of *Ehd1*
 52 in WT under PEG treatment for the indicated periods. The seedlings were grown
 53 under continue light for 4 weeks and then subjected to PEG treatment.

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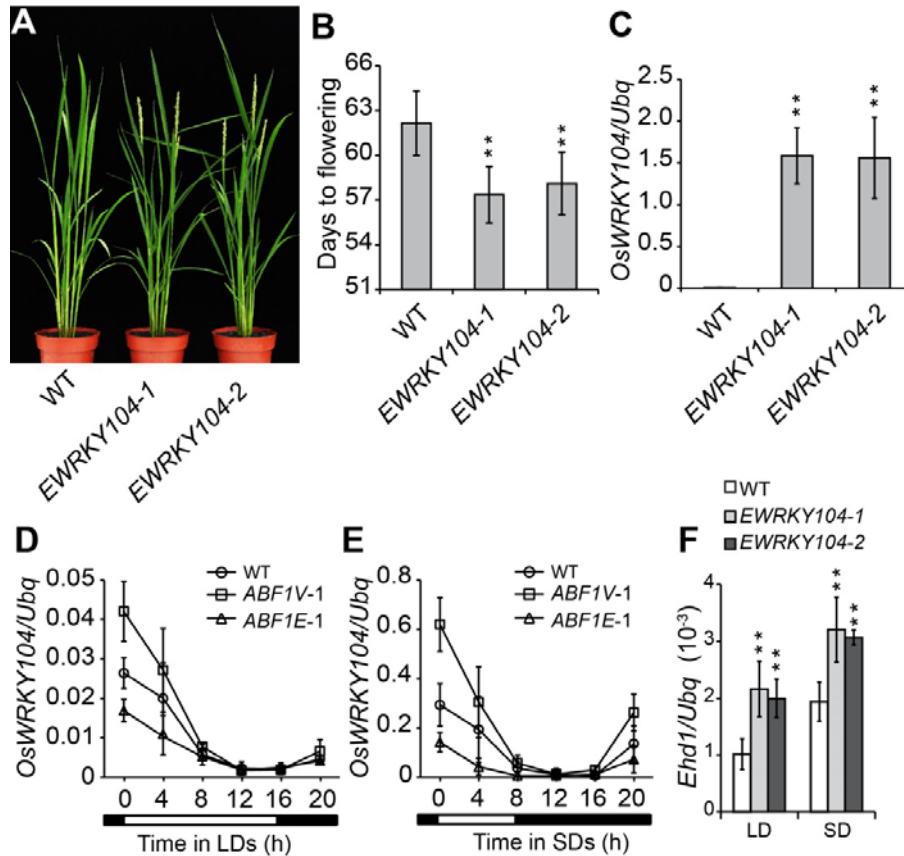


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57 **Supplemental Figure S6.** Phylogenetic tree of OsABF1 and homologous proteins.
 58 Protein sequences were downloaded from the MSU Rice Genome Annotation Project
 59 (http://rice.plantbiology.msu.edu/analyses_search_locus.shtml) databases and then
 60 used for Neighbor-joining phylogenetic analysis (MEGA5.2). The scale bar indicates
 61 substitutions per site.

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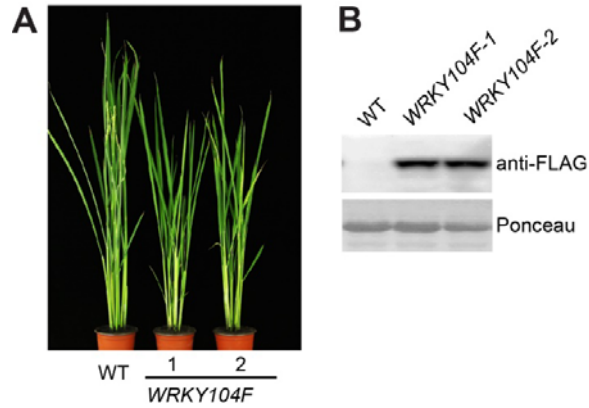


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65 **Supplemental Figure S7.** EAR-OsWRKY104 hybrid transcription factor leads to
 66 early flowering phenotype. A, Representative flowering image of indicated genotypes
 67 cultured under NDs. *EWRKY104*, *Pubi:EAR4-OsWRKY104*. B, Flowering time of
 68 each genotype as in A. Mean values \pm s.d. (standard deviations) were shown. The
 69 value of each genotype was compared to that of WT (Student's *t* tests, ***P* < 0.01,
 70 *n*=20). C, qRT-PCR analysis of *OsWRKY104* mRNA level in each genotype. The
 71 leaves of 4-week-old seedlings were sampled just at the end of dark period under SDs.
 72 D and E, qRT-PCR analysis of the dynamic expression of *OsWRKY104* mRNA under
 73 LDs or SDs. F, qRT-PCR analysis of *Ehd1* mRNA level in each genotype cultured
 74 under LDs or SDs. The samples were collected just at the end of dark period.

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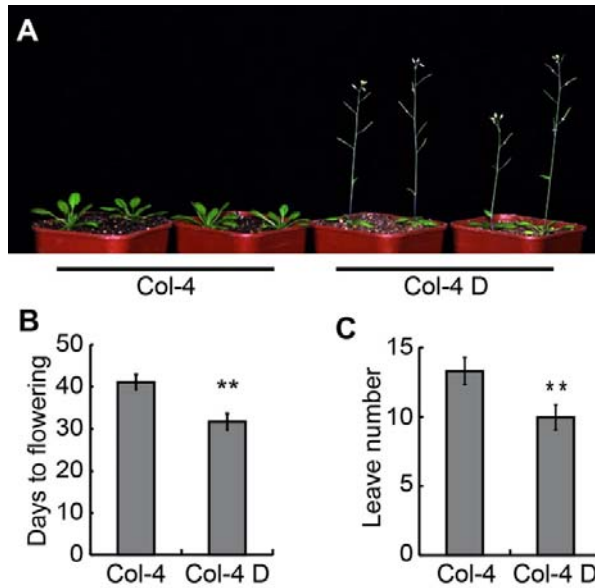
78 **Supplemental Figure S8.** Overexpression of *OsWRKY104* confers later flowering

79 phenotype. A, Representative flowering image of indicated genotypes under LDs.

80 *WRKY104F*, *Pubi:OsWRKY104-3Flag*. B, Protein expression analysis of *WRKY104F*

81 in indicated lines. The immunoblot was probed with anti-Flag antibody.

82

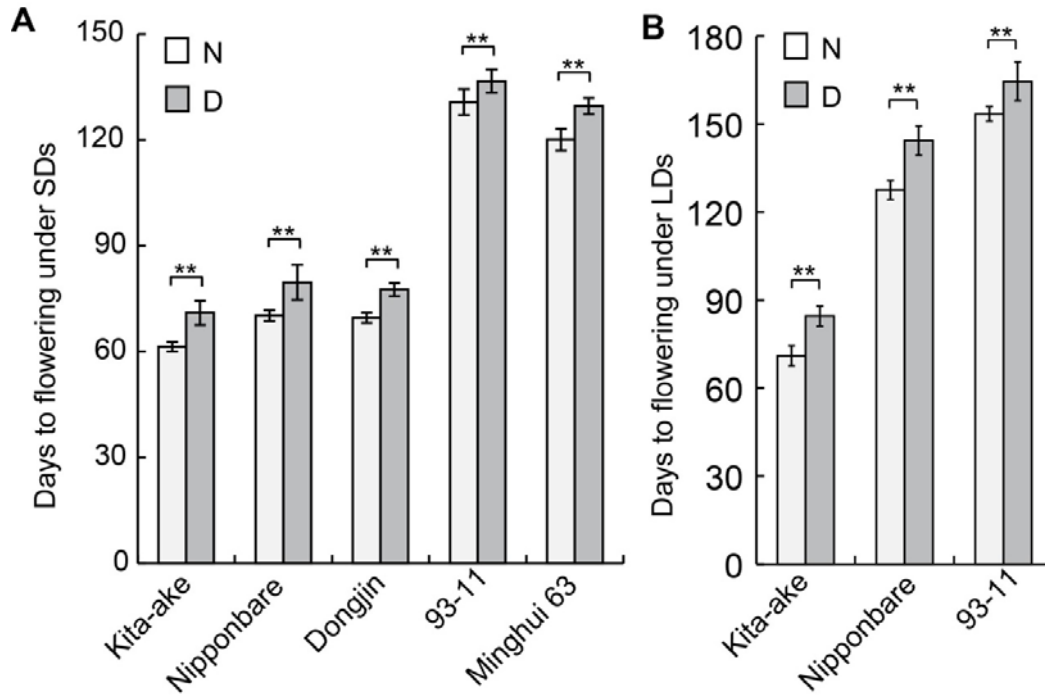


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85 **Supplemental Figure S9.** Drought accelerates flowering in Arabidopsis. A, Image of
 86 5-week-old Columbia ecotype (Col-4) plants grown in normal (Left) or drought (right,
 87 Col-4 D) condition under LDs. B, Flowering time of the plants as in A (Student's *t*
 88 tests, ** $P < 0.01$, $n = 20$). C, Leaf number of the plants as in A (Student's *t* tests, ** P
 89 < 0.01 , $n = 20$).

90



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93 **Supplemental Figure S10.** Drought delays flowering in rice. A, Flowering time of
 94 *japonica* cultivars (Kita-ake, Nipponbare, Dongjin) and *indica* cultivars (93-11,
 95 Minghui 63) grown in normal (N) or drought condition (D) under SDs (Student's *t*
 96 tests, ** $P < 0.01$, $n = 20$). B, Flowering time of indicated cultivar grown in normal (N)
 97 or drought condition (D) under LDs (Student's *t* tests, ** $P < 0.01$, $n = 20$).
 98

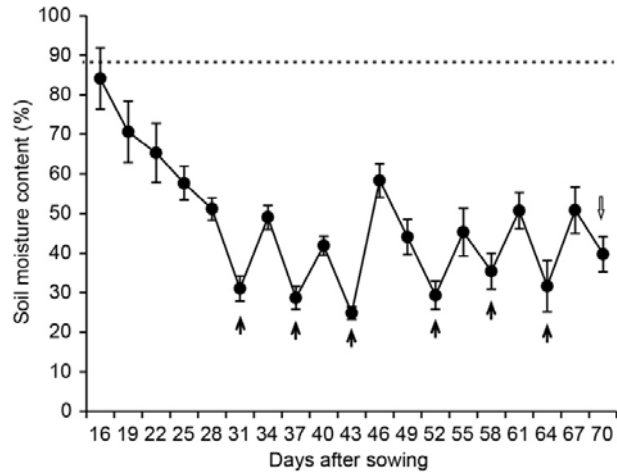
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219 gaggggggcccctgaggatcccgggaattctaagaggagtccacatggtagatctgactagtgttaacg

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221 **Supplemental Figure S11.** Vector map and completed sequence of pHCF.

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225 **Supplemental Figure S12.** The soil moisture contents during drought regime
 226 experiment. The arrows and the hollow arrow indicate irrigation time and flowering
 227 time of WT under drought treatment respectively. The dash line indicates saturated
 228 soil moisture content. The soil moisture content was calculated by the formula: $[(\text{total soil weight}) - (\text{dry soil weight})]/(\text{dry soil weight})$. Values were mean \pm s.d. (n = 5).

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Supplemental Table S1. Oligonucleotide primers used in this study.

Experiment	Primer name	Sequence
qRT-PCR	Ubq-QF	5' AACCAGCTGAGGCCCAAGA 3'
	Ubq-QR	5' ACGATTGATTTAACCAGTCCATGA 3'
	Ehd1-QF	5' CCTACAGTGATTATGGCTTCA 3'
	Ehd1-QR	5' GTGCTGCCAAATGTTGCTC 3'
	Hd1-QF	5' TCAGCAACAGCATATCTTTCTCATCA 3'
	Hd1-QR	5' TCTGGAATTTGGCATATCTATCACC 3'
	Ehd2-QF	5' CGACGACAATAGCTCGATCGC 3'
	Ehd2-QR	5' GTGCATGGTCACGGAGCCTT 3'
	Ehd3-QF	5' GGACCACCTCGTCACCTACAA 3'
	Ehd3-QR	5' CGCCGTTGGCCATGAG 3'
	Ehd4-QF	5' CAGCCAGCGGAATCATCAC 3'
	Ehd4-QR	5' CCAAATCCATCAGACCTACTCCT 3'
	OsMADS50-QF	5' CAGGCCAGGAATAAGCTGGAT 3'
	OsMADS50-QR	5' TTAGGATGGTTTGGTGTTCATTGC 3'
	OsMADS51-QF	5' GTTTGCTCTGCTCCTACTC 3'
	OsMADS51-QR	5' ACTCCTCCTCCAGCATTGAA 3'
	OsMADS56-QF	5' GACCGCTATAAAGCATAACACA 3'
	OsMADS56-QR	5' TCATGTGGTTAGCCACCAGC 3'
	OsGI-QF	5' GATAGACGGCACTTCAGCAGAT 3'
	OsGI-QR	5' TGGAGAAAGGTTGTGGATGC 3'
	COL4-QF	5' GGAATCAAGGCCATCGGG 3'
	COL4-QR	5' CGAGCCC GCCGACAG 3'
	SE5-QF	5' AGGACTCCCAAGCTTTTATC 3'
	SE5-QR	5' CTCCAGAATACGAGAACGAC 3'
	OsphyB-QF	5' ATGGAACAGACACAATGCTT 3'
	OsphyB-QR	5' AGCATAACCATATCAGCTT 3'
	DTH8-QF	5' CAGGAGTGC GTGTCGGAGTT 3'
	DTH8-QR	5' GGTCGTCGCCGTTGATGGT 3'
	LFL-QF	5' TTGTCATCGGAGCAAAGAAGG 3'
	LFL-QR	5' TGCCATGGGAGAGAGATAGTCA 3'
	Hd3a-QF	5' GCTCACTATCATCATCCAGCATG 3'
	Hd3a-QR	5' CCTTGCTCAGCTATTTAATTGCATAA 3'
	RFT1-QF	5' TGACCTAGATTCAAAGTCTAATCCTT 3'
	RFT1-QR	5' TGCCGGCCATGTCAAATTAATAAC 3'
	Ghd7-QF	5' GTCGCCAAATTATCAGGTGAAAA 3
	Ghd7-QR	5' ACAGGCCACATCCTTCTCCG 3'
	OsABF1-QF	5' GGAGGAGAACGCCAAGATGT 3'
	OsABF1-QR	5' GATCTCGTGCTGACGTTTTCC 3'
	OsABF1-RNAi-QF	5' GGAGATGACGCTGGAGGACTT 3'
	OsABF1-RNAi-QR	5' CCATCACCACCTGCCCT 3'
OsZIP40-QF	5' AGGAGAAAAATCAAAGAGGCTTAA 3'	

	OsZIP40-QR	5' TTCCATTGAGTTGGTTCTTCGTA 3'
	OsZIP72-QF	5' AGATATCATGGAAATGCAGAAAAAT 3'
	OsZIP72-QR	5' GGACCAGTCAGTGTCTTCGC 3'
	OsZIP23-QF	5' AAATGTTGGAGCAGCAAAAGAA 3'
	OsZIP23-QR	5' CCCGTCAGAGTCCTCCGAA 3'
	OsZIP10-QF	5' CGCTCGTCTCAAAGAGGCAG 3'
	OsZIP10-QR	5' ATTCATCTTCTCCTTGGACTGCT 3'
	OsZIP66-QF	5' CATCTTCTTCGGAACTACGG 3'
	OsZIP66-QR	5' GACATCAGCCTATTCCCATG 3'
	OsZIP46-QF	5' GCAGAAAAAGCAGGTGGAAAT 3'
	OsZIP46-QR	5' GTCAGTGTTCGTCCGAGGC 3'
	OsZIP09-QF	5' TTCAAGAGCCAGGAAGCAGG 3'
	OsZIP09-QR	5' GAAATCTGCGGAGCTTGTCTC 3'
	OsZIP42-QF	5' CAGGGGAGATTGCAGATAAGCT 3'
	OsZIP42-QR	5' CGAGCTTGTTCCGCTGAGTT 3'
	WRKY104-QF	5' GCTTGCTCTTCAACTCTTGGGA 3'
	WRKY104-QR	5' AAGATTGGTCAGCTTTTGTAGTGTCTC 3'
	WRKY104-ChIP-QFa	5' TCACAACACTACAACATGGTGAGCAA 3'
	WRKY104-ChIP-QRa	5' TTCGTTTTCCCTTTAGCTTCTG 3'
	WRKY104-ChIP-QFb	5' CATGCCGAACCTTAGGTGGA 3'
	WRKY104-ChIP-QRb	5' GTCGTTTTTGTAGTTCGCTGTTGTGT 3'
	WRKY104-ChIP-QFc	5' GAGAAGATCTACCATTGCTCTATAGCT 3'
	WRKY104-ChIP-QRc	5' CGAGTGGATTATTACTAGCTTAGTGAAT 3'
	WRKY104-ChIP-QFd	5' CCACAAGTGACCCCATCCAT 3'
	WRKY104-ChIP-QRd	5' CCTGAGCATATCATTAAAAAATATCT 3'
	WRKY104-ChIP-QFe	5' TTAGGATGAAGTTCTGAGCAAAAAC 3'
	WRKY104-ChIP-QRe	5' GGGTTCTATTCTAGGATGTCTCTCC 3'
	25s-ChIP-QF	5' GGGACTACCCGCTGAGTTTA 3'
	25s-ChIP-QR	5' GGACGCCTCTCCAGACTACA 3'
Gene cloning	pCold-OsABF1-F	5' ATCCGAATTCAAGCTT ATGATGGCGTCGAGGGTG 3'
	pCold-OsABF1-R	5' GCAGGTCGACAAGCTT CTACCACTCCATCGAGTTTGTCT 3'
	pDONR-OsABF1-F	5' CAAAAAAGCAGGCTTC ATGATGGCGTCGAGGGTG 3'
	pDONR-OsABF1-R	5' CAAGAAAGCTGGGTC CCACTCCATCGAGTTTGTCT 3'
	attB adaptor-F	5' GTGGGGACAAGTTTGTACAAAAAAGCAGGCTT C 3'
	attB adaptor-R	5' GTGGGGACCACTTTGTACAAGAAAGCTGGGTC 3'

OsABF1-OX-F	5' TCTGCACTAGGTACCTGCAG ATGATGGCGTCGAGGGTG 3'
OsABF1-OX-R	5' ATGGATCCGTCGACCTGCAG CCACTCCATCGAGTTTGTCT 3'
OsABF1-RNAi-F	5' CAAAAAAGCAGGCTTC GCAGGAGCAGGAAGAGGCA 3'
OsABF1-RNAi-R	5' CAAGAAAGCTGGGTC GATCTCGTGCTGACGTTTCC 3'
Ehd1-OX-F	5' TCTGCACTAGGTACCTGCAG ATGGATCACCGAGAGCTGTGG 3'
Ehd1-OX-R	5' ATGGATCCGTCGACCTGCAG GAAATTCCAAAAACATGGTCCAT 3'
Ehd1-RNAi-F	5' CAAAAAAGCAGGCTTC TTGATTTCTGCTAAAACCTGTG 3'
Ehd1-RNAi-R	5' CAAGAAAGCTGGGTC CGAGGTCTCGTATGTCCGTGA 3'
WRKY104-OX-F	5' TCTGCACTAGGTACCTGCAG ATGAAAATTCTCGAATCTTTTGGTC 3'
WRKY104-OX-R	5' ATGGATCCGTCGACCTGCAG TCCCATATGCATATTGGACTG 3'
pDONR-WRKY104-F	5' CAAAAAAGCAGGCTTC ATGAAAATTCTCGAATCTTTTGGTC 3'
pDONR-WRKY104-R	5' CAAGAAAGCTGGGTC TCCCATATGCATATTGGACTG 3'
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OsABF1-HA-BD-R	5' GGATCCCCGGGAATTC TCTGGCACGTCGTAGGGGTA 3'
OsABF1-Δ1-BD-F	5' CATGGAGGCCGAATTC GGTGACAGGCCGATGTGCG 3'
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DST-BD-F	5' CATGGAGGCCGAATTC ATGGACTCCCCGTCGCCT 3'
DST-BD-R	5' GGATCCCCGGGAATTC CTAGAGGCTCAAGTTGAGGTGCA 3'