

2016BalsamPhenoMunging.R

Audrey McCombs

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```
library(dplyr)
```

```
##
## Attaching package: 'dplyr'
##
## The following objects are masked from 'package:stats':
##
##   filter, lag
##
## The following objects are masked from 'package:base':
##
##   intersect, setdiff, setequal, union
```

```
library(tidyr)
```

```
## Warning: package 'tidyr' was built under R version 3.2.5
```

```
library(lubridate)
```

```
## Warning: package 'lubridate' was built under R version 3.2.5
```

```
##
## Attaching package: 'lubridate'
##
## The following object is masked from 'package:base':
##
##   date
```

```
setwd("D:/Iowa State University/Debinski Lab/Nectar data/MAL")
```

```
bp1 <- read.csv("nectar analysis/data files/raw data/Balsamroot phenology/160528.csv", header = T, as.is = T)
bp2 <- read.csv("nectar analysis/data files/raw data/Balsamroot phenology/160531.csv", header = T, as.is = T)
bp3 <- read.csv("nectar analysis/data files/raw data/Balsamroot phenology/160603.csv", header = T, as.is = T)
bp4 <- read.csv("nectar analysis/data files/raw data/Balsamroot phenology/160606.csv", header = T, as.is = T)
bp5 <- read.csv("nectar analysis/data files/raw data/Balsamroot phenology/160609.csv", header = T, as.is = T)
bp6 <- read.csv("nectar analysis/data files/raw data/Balsamroot phenology/160612.csv", header = T, as.is = T)
bp7 <- read.csv("nectar analysis/data files/raw data/Balsamroot phenology/160615.csv", header = T, as.is = T)
bp8 <- read.csv("nectar analysis/data files/raw data/Balsamroot phenology/160622.csv", header = T, as.is = T)
bp9 <- read.csv("nectar analysis/data files/raw data/Balsamroot phenology/160625.csv", header = T, as.is = T)
```

```
bpall <- as.data.frame(rbind(bp1, bp2, bp3, bp4, bp5, bp6, bp7, bp8, bp9))
```

```
bpall <- bpall[,-c(12:1002)]
```

```
rm(bp1, bp2, bp3, bp4, bp5, bp6, bp7, bp8, bp9)
```

```
#create unique plant ID
```

```
bpall$plantid <- paste(bpall$Plot.ID, bpall$Plant.ID, sep = "-")
```

```
#create treatment category
```

```
bpall$treatment <- gsub("^C", "", bpall$Plot.ID)
```

```
bpall$treatment <- gsub("W", "", bpall$treatment)
```

```

bpcall$treatment <- gsub("E", "", bpcall$treatment)
bpcall$treatment <- gsub("HSR", "H", bpcall$treatment)
bpcall$treatment <- gsub("SR", "C", bpcall$treatment)
bpcall$treatment <- gsub('[:digit:]]+', '', bpcall$treatment)

#remove plants that have no flowers
bpcall <- bpcall[!(is.na(bpcall$Flower.height)),]
bpcall <- bpcall[bpcall$Flower.height != "0",]
bpcall <- bpcall[!(is.na(bpcall$Leaf.height)),] #three leaf heights were recorded as flower heights
rm(bpcall)
bpcall <- bpcall[,-c(2,4:5, 7, 11)]

bpcall <- rename(bpcall, plot = Plot.ID, date = Date, BD = Buds, FF = Fully.flowering, SG = Senescing)

bpcall <- bpcall[,c(1,7,8,2,3,4,5,6)]

bpcall$date <- mdy(bpcall$date)
bpcall$plot <- as.factor(bpcall$plot)
bpcall$plantid <- as.factor(bpcall$plantid)
bpcall$treatment <- as.factor(bpcall$treatment)

bpcall[is.na(bpcall)] <- 0
bpcall$TF <- rowSums(bpcall[,5:8])

#Create plant-level tables

plantdfs <- list()
dfnames <- levels(bpcall$plantid)
for (i in 1:length(dfnames)) {
  plantdfs[[i]] = as.data.frame(subset(bpcall, plantid == dfnames[i], select = c(1:9)))
}

for (i in 1:length(plantdfs)){
  print(plantdfs[[i]])
}

```

##	plot	plantid	treatment	date	BD	FF	SG	SD	TF
## 68	CC6	CC6-1	C	2016-05-28	7	0	0	0	7
## 226	CC6	CC6-1	C	2016-05-31	7	0	0	0	7
## 384	CC6	CC6-1	C	2016-06-03	6	0	0	0	6
## 542	CC6	CC6-1	C	2016-06-06	4	1	0	0	5
## 700	CC6	CC6-1	C	2016-06-09	0	5	0	0	5
## 858	CC6	CC6-1	C	2016-06-12	0	3	2	0	5
## 1016	CC6	CC6-1	C	2016-06-15	0	1	4	0	5
## 1175	CC6	CC6-1	C	2016-06-22	0	0	0	6	6
## 1334	CC6	CC6-1	C	2016-06-25	0	0	0	4	4
##	plot	plantid	treatment	date	BD	FF	SG	SD	TF
## 77	CC6	CC6-10	C	2016-05-28	8	0	0	0	8
## 235	CC6	CC6-10	C	2016-05-31	10	0	0	0	10
## 393	CC6	CC6-10	C	2016-06-03	9	0	0	0	9
## 551	CC6	CC6-10	C	2016-06-06	4	4	0	0	8
## 709	CC6	CC6-10	C	2016-06-09	1	7	0	0	8
## 867	CC6	CC6-10	C	2016-06-12	0	2	5	0	7
## 1025	CC6	CC6-10	C	2016-06-15	1	0	7	0	8

##	1184	CC6	CC6-10	C	2016-06-22	0	0	0	8	8
##	1343	CC6	CC6-10	C	2016-06-25	0	0	0	8	8
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	229	CC6	CC6-4	C	2016-05-31	2	0	0	0	2
##	387	CC6	CC6-4	C	2016-06-03	1	0	0	0	1
##	545	CC6	CC6-4	C	2016-06-06	0	0	0	0	0
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	76	CC6	CC6-9	C	2016-05-28	10	0	0	0	10
##	234	CC6	CC6-9	C	2016-05-31	10	0	0	0	10
##	392	CC6	CC6-9	C	2016-06-03	8	0	0	0	8
##	550	CC6	CC6-9	C	2016-06-06	7	1	0	0	8
##	708	CC6	CC6-9	C	2016-06-09	2	2	0	0	4
##	866	CC6	CC6-9	C	2016-06-12	1	0	3	0	4
##	1024	CC6	CC6-9	C	2016-06-15	0	0	3	0	3
##	1183	CC6	CC6-9	C	2016-06-22	0	0	0	4	4
##	1342	CC6	CC6-9	C	2016-06-25	0	0	0	4	4
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	58	CH5	CH5-2	H	2016-05-28	6	0	0	0	6
##	216	CH5	CH5-2	H	2016-05-31	8	0	0	0	8
##	374	CH5	CH5-2	H	2016-06-03	7	1	0	0	8
##	532	CH5	CH5-2	H	2016-06-06	0	0	0	0	0
##	690	CH5	CH5-2	H	2016-06-09	0	8	0	0	8
##	848	CH5	CH5-2	H	2016-06-12	0	2	5	0	7
##	1006	CH5	CH5-2	H	2016-06-15	0	0	7	0	7
##	1165	CH5	CH5-2	H	2016-06-22	0	0	0	8	8
##	1324	CH5	CH5-2	H	2016-06-25	0	0	0	8	8
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	59	CH5	CH5-3	H	2016-05-28	6	0	0	0	6
##	217	CH5	CH5-3	H	2016-05-31	7	0	0	0	7
##	375	CH5	CH5-3	H	2016-06-03	6	0	0	0	6
##	533	CH5	CH5-3	H	2016-06-06	3	4	0	0	7
##	691	CH5	CH5-3	H	2016-06-09	0	7	0	0	7
##	849	CH5	CH5-3	H	2016-06-12	0	2	5	0	7
##	1007	CH5	CH5-3	H	2016-06-15	0	0	7	0	7
##	1166	CH5	CH5-3	H	2016-06-22	0	0	0	7	7
##	1325	CH5	CH5-3	H	2016-06-25	0	0	0	7	7
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	60	CH5	CH5-4	H	2016-05-28	8	0	0	0	8
##	218	CH5	CH5-4	H	2016-05-31	10	0	0	0	10
##	376	CH5	CH5-4	H	2016-06-03	11	0	0	0	11
##	534	CH5	CH5-4	H	2016-06-06	4	5	0	0	9
##	692	CH5	CH5-4	H	2016-06-09	0	10	0	0	10
##	850	CH5	CH5-4	H	2016-06-12	0	5	3	0	8
##	1008	CH5	CH5-4	H	2016-06-15	0	0	10	0	10
##	1167	CH5	CH5-4	H	2016-06-22	0	0	0	10	10
##	1326	CH5	CH5-4	H	2016-06-25	0	0	0	10	10
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	61	CH5	CH5-5	H	2016-05-28	4	0	0	0	4
##	219	CH5	CH5-5	H	2016-05-31	6	0	0	0	6
##	377	CH5	CH5-5	H	2016-06-03	6	0	0	0	6
##	535	CH5	CH5-5	H	2016-06-06	0	4	0	0	4
##	693	CH5	CH5-5	H	2016-06-09	0	4	0	0	4
##	851	CH5	CH5-5	H	2016-06-12	0	1	4	0	5
##	1009	CH5	CH5-5	H	2016-06-15	0	0	5	0	5

##	1168	CH5	CH5-5	H	2016-06-22	0	0	0	5	5
##	1327	CH5	CH5-5	H	2016-06-25	0	0	0	5	5
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	62	CH5	CH5-6	H	2016-05-28	14	0	0	0	14
##	220	CH5	CH5-6	H	2016-05-31	14	0	0	0	14
##	378	CH5	CH5-6	H	2016-06-03	14	0	0	0	14
##	536	CH5	CH5-6	H	2016-06-06	4	7	0	0	11
##	694	CH5	CH5-6	H	2016-06-09	1	9	0	0	10
##	852	CH5	CH5-6	H	2016-06-12	1	9	2	0	12
##	1010	CH5	CH5-6	H	2016-06-15	0	2	10	0	12
##	1169	CH5	CH5-6	H	2016-06-22	0	0	0	12	12
##	1328	CH5	CH5-6	H	2016-06-25	0	0	0	12	12
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	63	CH5	CH5-7	H	2016-05-28	11	0	0	0	11
##	221	CH5	CH5-7	H	2016-05-31	15	0	0	0	15
##	379	CH5	CH5-7	H	2016-06-03	16	0	0	0	16
##	537	CH5	CH5-7	H	2016-06-06	9	6	0	0	15
##	695	CH5	CH5-7	H	2016-06-09	3	11	0	0	14
##	853	CH5	CH5-7	H	2016-06-12	1	5	9	0	15
##	1011	CH5	CH5-7	H	2016-06-15	0	2	15	0	17
##	1170	CH5	CH5-7	H	2016-06-22	0	0	0	17	17
##	1329	CH5	CH5-7	H	2016-06-25	0	0	0	16	16
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	95	CHSR8	CHSR8-1	H	2016-05-28	3	0	0	0	3
##	253	CHSR8	CHSR8-1	H	2016-05-31	3	0	0	0	3
##	411	CHSR8	CHSR8-1	H	2016-06-03	4	0	0	0	4
##	569	CHSR8	CHSR8-1	H	2016-06-06	0	3	0	0	3
##	727	CHSR8	CHSR8-1	H	2016-06-09	0	3	0	0	3
##	885	CHSR8	CHSR8-1	H	2016-06-12	0	2	2	0	4
##	1043	CHSR8	CHSR8-1	H	2016-06-15	0	1	3	0	4
##	1202	CHSR8	CHSR8-1	H	2016-06-22	0	0	0	4	4
##	1361	CHSR8	CHSR8-1	H	2016-06-25	0	0	0	4	4
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	96	CHSR8	CHSR8-2	H	2016-05-28	9	0	0	0	9
##	254	CHSR8	CHSR8-2	H	2016-05-31	10	0	0	0	10
##	412	CHSR8	CHSR8-2	H	2016-06-03	8	0	0	0	8
##	570	CHSR8	CHSR8-2	H	2016-06-06	3	5	0	0	8
##	728	CHSR8	CHSR8-2	H	2016-06-09	1	7	0	0	8
##	886	CHSR8	CHSR8-2	H	2016-06-12	0	2	5	0	7
##	1044	CHSR8	CHSR8-2	H	2016-06-15	0	1	8	0	9
##	1203	CHSR8	CHSR8-2	H	2016-06-22	0	0	0	8	8
##	1362	CHSR8	CHSR8-2	H	2016-06-25	0	0	0	8	8
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	98	CHSR8	CHSR8-4	H	2016-05-28	27	0	0	0	27
##	256	CHSR8	CHSR8-4	H	2016-05-31	35	0	0	0	35
##	414	CHSR8	CHSR8-4	H	2016-06-03	41	0	0	0	41
##	572	CHSR8	CHSR8-4	H	2016-06-06	34	8	0	0	42
##	730	CHSR8	CHSR8-4	H	2016-06-09	22	15	0	0	37
##	888	CHSR8	CHSR8-4	H	2016-06-12	7	22	3	0	32
##	1046	CHSR8	CHSR8-4	H	2016-06-15	4	18	12	0	34
##	1205	CHSR8	CHSR8-4	H	2016-06-22	0	0	5	44	49
##	1364	CHSR8	CHSR8-4	H	2016-06-25	0	0	14	34	48
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	99	CHSR8	CHSR8-5	H	2016-05-28	8	0	0	0	8

##	257	CHSR8	CHSR8-5	H	2016-05-31	8	0	0	0	8
##	415	CHSR8	CHSR8-5	H	2016-06-03	8	0	0	0	8
##	573	CHSR8	CHSR8-5	H	2016-06-06	2	6	0	0	8
##	731	CHSR8	CHSR8-5	H	2016-06-09	1	7	0	0	8
##	889	CHSR8	CHSR8-5	H	2016-06-12	0	4	4	0	8
##	1047	CHSR8	CHSR8-5	H	2016-06-15	0	2	6	0	8
##	1206	CHSR8	CHSR8-5	H	2016-06-22	0	0	0	8	8
##	1365	CHSR8	CHSR8-5	H	2016-06-25	0	0	0	7	7
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	100	CHSR8	CHSR8-6	H	2016-05-28	7	0	0	0	7
##	258	CHSR8	CHSR8-6	H	2016-05-31	8	0	0	0	8
##	416	CHSR8	CHSR8-6	H	2016-06-03	4	3	0	0	7
##	574	CHSR8	CHSR8-6	H	2016-06-06	3	5	0	0	8
##	732	CHSR8	CHSR8-6	H	2016-06-09	1	7	0	0	8
##	890	CHSR8	CHSR8-6	H	2016-06-12	0	3	5	0	8
##	1048	CHSR8	CHSR8-6	H	2016-06-15	0	2	6	0	8
##	1207	CHSR8	CHSR8-6	H	2016-06-22	0	0	0	8	8
##	1366	CHSR8	CHSR8-6	H	2016-06-25	0	0	0	8	8
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	85	CSR7	CSR7-1	C	2016-05-28	12	0	0	0	12
##	243	CSR7	CSR7-1	C	2016-05-31	14	0	0	0	14
##	401	CSR7	CSR7-1	C	2016-06-03	9	1	0	0	10
##	559	CSR7	CSR7-1	C	2016-06-06	7	3	0	0	10
##	717	CSR7	CSR7-1	C	2016-06-09	3	5	0	0	8
##	875	CSR7	CSR7-1	C	2016-06-12	0	1	4	0	5
##	1033	CSR7	CSR7-1	C	2016-06-15	0	0	4	1	5
##	1192	CSR7	CSR7-1	C	2016-06-22	0	0	0	4	4
##	1351	CSR7	CSR7-1	C	2016-06-25	0	0	0	6	6
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	87	CSR7	CSR7-3	C	2016-05-28	4	0	0	0	4
##	245	CSR7	CSR7-3	C	2016-05-31	5	0	0	0	5
##	403	CSR7	CSR7-3	C	2016-06-03	4	0	0	0	4
##	561	CSR7	CSR7-3	C	2016-06-06	2	2	0	0	4
##	719	CSR7	CSR7-3	C	2016-06-09	2	2	0	0	4
##	877	CSR7	CSR7-3	C	2016-06-12	0	1	1	0	2
##	1035	CSR7	CSR7-3	C	2016-06-15	0	1	0	1	2
##	1194	CSR7	CSR7-3	C	2016-06-22	0	0	0	3	3
##	1353	CSR7	CSR7-3	C	2016-06-25	0	0	0	2	2
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	89	CSR7	CSR7-5	C	2016-05-28	2	0	0	0	2
##	247	CSR7	CSR7-5	C	2016-05-31	5	0	0	0	5
##	405	CSR7	CSR7-5	C	2016-06-03	1	1	0	0	2
##	563	CSR7	CSR7-5	C	2016-06-06	1	1	0	0	2
##	721	CSR7	CSR7-5	C	2016-06-09	0	2	0	0	2
##	879	CSR7	CSR7-5	C	2016-06-12	0	1	1	0	2
##	1037	CSR7	CSR7-5	C	2016-06-15	0	0	2	0	2
##	1196	CSR7	CSR7-5	C	2016-06-22	0	0	0	2	2
##	1355	CSR7	CSR7-5	C	2016-06-25	0	0	0	2	2
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	90	CSR7	CSR7-6	C	2016-05-28	1	0	0	0	1
##	248	CSR7	CSR7-6	C	2016-05-31	1	0	0	0	1
##	406	CSR7	CSR7-6	C	2016-06-03	1	0	0	0	1
##	564	CSR7	CSR7-6	C	2016-06-06	0	1	0	0	1
##	722	CSR7	CSR7-6	C	2016-06-09	0	1	0	0	1

##	880	CSR7	CSR7-6	C	2016-06-12	0	0	1	0	1
##	1038	CSR7	CSR7-6	C	2016-06-15	0	0	0	1	1
##	1197	CSR7	CSR7-6	C	2016-06-22	0	0	0	1	1
##	1356	CSR7	CSR7-6	C	2016-06-25	0	0	0	1	1
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	92	CSR7	CSR7-8	C	2016-05-28	6	0	0	0	6
##	250	CSR7	CSR7-8	C	2016-05-31	8	0	0	0	8
##	408	CSR7	CSR7-8	C	2016-06-03	4	0	0	0	4
##	566	CSR7	CSR7-8	C	2016-06-06	1	2	0	0	3
##	724	CSR7	CSR7-8	C	2016-06-09	0	2	0	0	2
##	882	CSR7	CSR7-8	C	2016-06-12	0	0	2	0	2
##	1040	CSR7	CSR7-8	C	2016-06-15	0	0	2	0	2
##	1199	CSR7	CSR7-8	C	2016-06-22	0	0	0	2	2
##	1358	CSR7	CSR7-8	C	2016-06-25	0	0	0	2	2
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	93	CSR7	CSR7-9	C	2016-05-28	19	0	0	0	19
##	251	CSR7	CSR7-9	C	2016-05-31	23	0	0	0	23
##	409	CSR7	CSR7-9	C	2016-06-03	10	4	0	0	14
##	567	CSR7	CSR7-9	C	2016-06-06	8	9	0	0	17
##	725	CSR7	CSR7-9	C	2016-06-09	2	15	0	0	17
##	883	CSR7	CSR7-9	C	2016-06-12	0	5	9	0	14
##	1041	CSR7	CSR7-9	C	2016-06-15	0	2	12	0	14
##	1200	CSR7	CSR7-9	C	2016-06-22	0	0	0	15	15
##	1359	CSR7	CSR7-9	C	2016-06-25	0	0	0	16	16
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	22	EC3	EC3-1	C	2016-05-28	8	0	0	0	8
##	180	EC3	EC3-1	C	2016-05-31	5	0	0	0	5
##	338	EC3	EC3-1	C	2016-06-03	4	1	0	0	5
##	496	EC3	EC3-1	C	2016-06-06	2	1	0	0	3
##	654	EC3	EC3-1	C	2016-06-09	2	1	0	0	3
##	812	EC3	EC3-1	C	2016-06-12	0	1	1	0	2
##	970	EC3	EC3-1	C	2016-06-15	0	0	2	0	2
##	1129	EC3	EC3-1	C	2016-06-22	0	0	0	0	0
##	1288	EC3	EC3-1	C	2016-06-25	0	0	0	2	2
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	24	EC3	EC3-3	C	2016-05-28	10	0	0	0	10
##	182	EC3	EC3-3	C	2016-05-31	12	0	0	0	12
##	340	EC3	EC3-3	C	2016-06-03	2	2	0	0	4
##	498	EC3	EC3-3	C	2016-06-06	0	4	0	0	4
##	656	EC3	EC3-3	C	2016-06-09	0	2	2	0	4
##	814	EC3	EC3-3	C	2016-06-12	0	0	4	0	4
##	972	EC3	EC3-3	C	2016-06-15	0	0	3	0	3
##	1131	EC3	EC3-3	C	2016-06-22	0	0	0	0	0
##	1290	EC3	EC3-3	C	2016-06-25	0	0	0	4	4
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	342	EC3	EC3-5	C	2016-06-03	0	0	0	0	0
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	45	EH4	EH4-11	H	2016-05-28	1	0	0	0	1
##	203	EH4	EH4-11	H	2016-05-31	2	0	0	0	2
##	361	EH4	EH4-11	H	2016-06-03	1	0	0	0	1
##	519	EH4	EH4-11	H	2016-06-06	2	0	0	0	2
##	677	EH4	EH4-11	H	2016-06-09	1	1	0	0	2
##	835	EH4	EH4-11	H	2016-06-12	1	1	0	0	2
##	993	EH4	EH4-11	H	2016-06-15	1	1	0	0	2

##	1152	EH4	EH4-11	H	2016-06-22	0	0	0	2	2
##	1311	EH4	EH4-11	H	2016-06-25	0	0	0	2	2
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	37	EH4	EH4-3	H	2016-05-28	17	0	0	0	17
##	195	EH4	EH4-3	H	2016-05-31	19	0	0	0	19
##	353	EH4	EH4-3	H	2016-06-03	10	3	0	0	13
##	511	EH4	EH4-3	H	2016-06-06	5	10	0	0	15
##	669	EH4	EH4-3	H	2016-06-09	6	12	0	0	18
##	827	EH4	EH4-3	H	2016-06-12	2	10	3	0	15
##	985	EH4	EH4-3	H	2016-06-15	1	0	17	0	18
##	1144	EH4	EH4-3	H	2016-06-22	0	0	0	18	18
##	1303	EH4	EH4-3	H	2016-06-25	0	0	0	18	18
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	38	EH4	EH4-4	H	2016-05-28	11	0	0	0	11
##	196	EH4	EH4-4	H	2016-05-31	10	0	0	0	10
##	354	EH4	EH4-4	H	2016-06-03	9	1	0	0	10
##	512	EH4	EH4-4	H	2016-06-06	8	2	0	0	10
##	670	EH4	EH4-4	H	2016-06-09	4	7	0	0	11
##	828	EH4	EH4-4	H	2016-06-12	2	8	1	0	11
##	986	EH4	EH4-4	H	2016-06-15	0	8	1	0	9
##	1145	EH4	EH4-4	H	2016-06-22	0	0	0	12	12
##	1304	EH4	EH4-4	H	2016-06-25	0	0	0	12	12
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	39	EH4	EH4-5	H	2016-05-28	1	0	0	0	1
##	197	EH4	EH4-5	H	2016-05-31	1	0	0	0	1
##	355	EH4	EH4-5	H	2016-06-03	1	0	0	0	1
##	513	EH4	EH4-5	H	2016-06-06	1	0	0	0	1
##	671	EH4	EH4-5	H	2016-06-09	0	1	0	0	1
##	829	EH4	EH4-5	H	2016-06-12	0	1	0	0	1
##	987	EH4	EH4-5	H	2016-06-15	0	0	1	0	1
##	1146	EH4	EH4-5	H	2016-06-22	0	0	0	2	2
##	1305	EH4	EH4-5	H	2016-06-25	0	0	0	2	2
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	40	EH4	EH4-6	H	2016-05-28	13	0	0	0	13
##	198	EH4	EH4-6	H	2016-05-31	14	0	0	0	14
##	356	EH4	EH4-6	H	2016-06-03	14	0	0	0	14
##	514	EH4	EH4-6	H	2016-06-06	15	0	0	0	15
##	672	EH4	EH4-6	H	2016-06-09	9	6	0	0	15
##	830	EH4	EH4-6	H	2016-06-12	0	10	1	0	11
##	988	EH4	EH4-6	H	2016-06-15	4	7	3	0	14
##	1147	EH4	EH4-6	H	2016-06-22	0	0	0	17	17
##	1306	EH4	EH4-6	H	2016-06-25	0	0	0	14	14
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	41	EH4	EH4-7	H	2016-05-28	2	0	0	0	2
##	199	EH4	EH4-7	H	2016-05-31	2	0	0	0	2
##	357	EH4	EH4-7	H	2016-06-03	4	0	0	0	4
##	515	EH4	EH4-7	H	2016-06-06	2	1	0	0	3
##	673	EH4	EH4-7	H	2016-06-09	1	1	0	0	2
##	831	EH4	EH4-7	H	2016-06-12	0	1	1	0	2
##	989	EH4	EH4-7	H	2016-06-15	0	1	1	0	2
##	1148	EH4	EH4-7	H	2016-06-22	0	0	0	3	3
##	1307	EH4	EH4-7	H	2016-06-25	0	0	0	3	3
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	42	EH4	EH4-8	H	2016-05-28	5	0	0	0	5

##	200	EH4	EH4-8	H	2016-05-31	5	0	0	0	5
##	358	EH4	EH4-8	H	2016-06-03	4	0	0	0	4
##	516	EH4	EH4-8	H	2016-06-06	3	2	0	0	5
##	674	EH4	EH4-8	H	2016-06-09	2	3	0	0	5
##	832	EH4	EH4-8	H	2016-06-12	0	4	1	0	5
##	990	EH4	EH4-8	H	2016-06-15	1	3	2	0	6
##	1149	EH4	EH4-8	H	2016-06-22	0	0	0	5	5
##	1308	EH4	EH4-8	H	2016-06-25	0	0	0	5	5
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	43	EH4	EH4-9	H	2016-05-28	3	0	0	0	3
##	201	EH4	EH4-9	H	2016-05-31	5	0	0	0	5
##	359	EH4	EH4-9	H	2016-06-03	4	0	0	0	4
##	517	EH4	EH4-9	H	2016-06-06	3	2	0	0	5
##	675	EH4	EH4-9	H	2016-06-09	0	4	0	0	4
##	833	EH4	EH4-9	H	2016-06-12	0	3	1	0	4
##	991	EH4	EH4-9	H	2016-06-15	0	0	3	0	3
##	1150	EH4	EH4-9	H	2016-06-22	0	0	0	3	3
##	1309	EH4	EH4-9	H	2016-06-25	0	0	0	3	3
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	1	EHSR1	EHSR1-1	H	2016-05-28	17	0	0	0	17
##	159	EHSR1	EHSR1-1	H	2016-05-31	19	0	0	0	19
##	317	EHSR1	EHSR1-1	H	2016-06-03	14	0	0	0	14
##	475	EHSR1	EHSR1-1	H	2016-06-06	20	0	0	0	20
##	633	EHSR1	EHSR1-1	H	2016-06-09	8	12	0	0	20
##	791	EHSR1	EHSR1-1	H	2016-06-12	4	11	0	0	15
##	949	EHSR1	EHSR1-1	H	2016-06-15	2	4	9	0	15
##	1108	EHSR1	EHSR1-1	H	2016-06-22	0	0	0	20	20
##	1267	EHSR1	EHSR1-1	H	2016-06-25	0	0	0	17	17
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	2	EHSR1	EHSR1-2	H	2016-05-28	14	0	0	0	14
##	160	EHSR1	EHSR1-2	H	2016-05-31	15	0	0	0	15
##	318	EHSR1	EHSR1-2	H	2016-06-03	14	0	0	0	14
##	476	EHSR1	EHSR1-2	H	2016-06-06	9	7	0	0	16
##	634	EHSR1	EHSR1-2	H	2016-06-09	3	11	0	0	14
##	792	EHSR1	EHSR1-2	H	2016-06-12	0	15	0	0	15
##	950	EHSR1	EHSR1-2	H	2016-06-15	1	0	12	0	13
##	1109	EHSR1	EHSR1-2	H	2016-06-22	0	0	0	16	16
##	1268	EHSR1	EHSR1-2	H	2016-06-25	0	0	0	14	14
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	4	EHSR1	EHSR1-4	H	2016-05-28	1	0	0	0	1
##	320	EHSR1	EHSR1-4	H	2016-06-03	1	0	0	0	1
##	478	EHSR1	EHSR1-4	H	2016-06-06	1	0	0	0	1
##	794	EHSR1	EHSR1-4	H	2016-06-12	0	0	1	0	1
##	952	EHSR1	EHSR1-4	H	2016-06-15	0	0	1	0	1
##	1111	EHSR1	EHSR1-4	H	2016-06-22	0	0	0	1	1
##	1270	EHSR1	EHSR1-4	H	2016-06-25	0	0	0	1	1
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	5	EHSR1	EHSR1-5	H	2016-05-28	6	0	0	0	6
##	163	EHSR1	EHSR1-5	H	2016-05-31	6	0	0	0	6
##	321	EHSR1	EHSR1-5	H	2016-06-03	6	0	0	0	6
##	479	EHSR1	EHSR1-5	H	2016-06-06	4	2	0	0	6
##	637	EHSR1	EHSR1-5	H	2016-06-09	2	4	0	0	6
##	795	EHSR1	EHSR1-5	H	2016-06-12	0	2	4	0	6
##	953	EHSR1	EHSR1-5	H	2016-06-15	0	0	5	0	5


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## 1112 EHSR1 EHSR1-5      H 2016-06-22  0  0  0  6  6
## 1271 EHSR1 EHSR1-5      H 2016-06-25  0  0  0  6  6
##      plot plantid treatment      date BD FF SG SD TF
## 8      ESR2  ESR2-1      C 2016-05-28  2  0  0  0  2
## 166 ESR2  ESR2-1      C 2016-05-31  2  0  0  0  2
## 324 ESR2  ESR2-1      C 2016-06-03  2  0  0  0  2
## 482 ESR2  ESR2-1      C 2016-06-06  1  0  0  0  1
##      plot plantid treatment      date BD FF SG SD TF
## 18      ESR2 ESR2-11      C 2016-05-28  1  0  0  0  1
## 176 ESR2 ESR2-11      C 2016-05-31  1  0  0  0  1
## 334 ESR2 ESR2-11      C 2016-06-03  1  0  0  0  1
## 492 ESR2 ESR2-11      C 2016-06-06  0  1  0  0  1
## 650 ESR2 ESR2-11      C 2016-06-09  0  0  0  0  0
## 808 ESR2 ESR2-11      C 2016-06-12  0  0  1  0  1
## 1125 ESR2 ESR2-11      C 2016-06-22  0  0  0  1  1
##      plot plantid treatment      date BD FF SG SD TF
## 9      ESR2  ESR2-2      C 2016-05-28  8  0  0  0  8
## 167 ESR2  ESR2-2      C 2016-05-31  7  0  0  0  7
## 325 ESR2  ESR2-2      C 2016-06-03  6  0  0  0  6
## 483 ESR2  ESR2-2      C 2016-06-06  4  1  0  0  5
## 641 ESR2  ESR2-2      C 2016-06-09  2  3  0  0  5
## 799 ESR2  ESR2-2      C 2016-06-12  0  3  1  0  4
## 957 ESR2  ESR2-2      C 2016-06-15  1  2  0  0  3
## 1116 ESR2  ESR2-2      C 2016-06-22  0  0  0  6  6
## 1275 ESR2  ESR2-2      C 2016-06-25  0  0  0  4  4
##      plot plantid treatment      date BD FF SG SD TF
## 10      ESR2  ESR2-3      C 2016-05-28 22  0  0  0 22
## 168 ESR2  ESR2-3      C 2016-05-31 27  0  0  0 27
## 326 ESR2  ESR2-3      C 2016-06-03 26  0  0  0 26
## 484 ESR2  ESR2-3      C 2016-06-06 20  0  0  0 20
## 642 ESR2  ESR2-3      C 2016-06-09  0  0  0  0  0
## 800 ESR2  ESR2-3      C 2016-06-12  0  0  0  0  0
## 958 ESR2  ESR2-3      C 2016-06-15  0  0  1  0  1
## 1117 ESR2  ESR2-3      C 2016-06-22 25  0  0  3 28
## 1276 ESR2  ESR2-3      C 2016-06-25  0  0  0  2  2
##      plot plantid treatment      date BD FF SG SD TF
## 11      ESR2  ESR2-4      C 2016-05-28 12  0  0  0 12
## 169 ESR2  ESR2-4      C 2016-05-31 13  3  0  0 16
## 327 ESR2  ESR2-4      C 2016-06-03  4  5  0  0  9
## 485 ESR2  ESR2-4      C 2016-06-06  4  5  0  0  9
## 643 ESR2  ESR2-4      C 2016-06-09  0  2  3  0  5
## 801 ESR2  ESR2-4      C 2016-06-12  0  0  5  0  5
## 959 ESR2  ESR2-4      C 2016-06-15  0  0  2  3  5
## 1118 ESR2  ESR2-4      C 2016-06-22  0  0  0  9  9
## 1277 ESR2  ESR2-4      C 2016-06-25  0  0  0  3  3
##      plot plantid treatment      date BD FF SG SD TF
## 13      ESR2  ESR2-6      C 2016-05-28  3  0  0  0  3
## 171 ESR2  ESR2-6      C 2016-05-31  4  0  0  0  4
## 329 ESR2  ESR2-6      C 2016-06-03  2  0  0  0  2
## 487 ESR2  ESR2-6      C 2016-06-06  1  1  0  0  2
## 645 ESR2  ESR2-6      C 2016-06-09  1  1  0  0  2
## 803 ESR2  ESR2-6      C 2016-06-12  0  0  1  0  1
## 961 ESR2  ESR2-6      C 2016-06-15  0  0  1  0  1
## 1120 ESR2  ESR2-6      C 2016-06-22  0  0  0  1  1

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##	1279	ESR2	ESR2-6	C	2016-06-25	0	0	0	1	1
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	331	ESR2	ESR2-8	C	2016-06-03	0	0	0	0	0
##	489	ESR2	ESR2-8	C	2016-06-06	0	0	0	0	0
##	647	ESR2	ESR2-8	C	2016-06-09	0	0	0	0	0
##	805	ESR2	ESR2-8	C	2016-06-12	0	0	0	0	0
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	282	WC11	WC11-1	C	2016-05-31	3	0	0	0	3
##	440	WC11	WC11-1	C	2016-06-03	2	0	0	0	2
##	598	WC11	WC11-1	C	2016-06-06	0	0	0	0	0
##	756	WC11	WC11-1	C	2016-06-09	1	0	0	0	1
##	914	WC11	WC11-1	C	2016-06-12	0	1	0	0	1
##	1072	WC11	WC11-1	C	2016-06-15	0	1	0	0	1
##	1231	WC11	WC11-1	C	2016-06-22	0	0	0	1	1
##	1390	WC11	WC11-1	C	2016-06-25	0	0	0	1	1
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	125	WC11	WC11-2	C	2016-05-28	7	0	0	0	7
##	283	WC11	WC11-2	C	2016-05-31	3	0	0	0	3
##	441	WC11	WC11-2	C	2016-06-03	1	1	0	0	2
##	599	WC11	WC11-2	C	2016-06-06	1	1	0	0	2
##	757	WC11	WC11-2	C	2016-06-09	0	1	1	0	2
##	915	WC11	WC11-2	C	2016-06-12	0	0	2	0	2
##	1073	WC11	WC11-2	C	2016-06-15	0	0	1	1	2
##	1232	WC11	WC11-2	C	2016-06-22	0	0	0	2	2
##	1391	WC11	WC11-2	C	2016-06-25	0	0	0	2	2
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	126	WC11	WC11-3	C	2016-05-28	10	0	0	0	10
##	284	WC11	WC11-3	C	2016-05-31	10	0	0	0	10
##	442	WC11	WC11-3	C	2016-06-03	4	0	0	0	4
##	600	WC11	WC11-3	C	2016-06-06	1	3	0	0	4
##	758	WC11	WC11-3	C	2016-06-09	0	4	0	0	4
##	916	WC11	WC11-3	C	2016-06-12	0	3	1	0	4
##	1074	WC11	WC11-3	C	2016-06-15	0	0	4	0	4
##	1233	WC11	WC11-3	C	2016-06-22	0	0	2	2	4
##	1392	WC11	WC11-3	C	2016-06-25	0	0	0	4	4
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	127	WC11	WC11-4	C	2016-05-28	3	0	0	0	3
##	285	WC11	WC11-4	C	2016-05-31	1	0	0	0	1
##	443	WC11	WC11-4	C	2016-06-03	2	0	0	0	2
##	601	WC11	WC11-4	C	2016-06-06	1	0	0	0	1
##	759	WC11	WC11-4	C	2016-06-09	0	1	0	0	1
##	917	WC11	WC11-4	C	2016-06-12	0	1	0	0	1
##	1075	WC11	WC11-4	C	2016-06-15	0	0	1	0	1
##	1234	WC11	WC11-4	C	2016-06-22	0	0	0	1	1
##	1393	WC11	WC11-4	C	2016-06-25	0	0	0	1	1
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	128	WC11	WC11-5	C	2016-05-28	2	0	0	0	2
##	286	WC11	WC11-5	C	2016-05-31	2	0	0	0	2
##	444	WC11	WC11-5	C	2016-06-03	2	0	0	0	2
##	602	WC11	WC11-5	C	2016-06-06	2	0	0	0	2
##	760	WC11	WC11-5	C	2016-06-09	0	2	0	0	2
##	918	WC11	WC11-5	C	2016-06-12	0	1	1	0	2
##	1076	WC11	WC11-5	C	2016-06-15	0	0	0	0	0
##	1235	WC11	WC11-5	C	2016-06-22	0	0	0	2	2

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## 1394 WC11 WC11-5 C 2016-06-25 0 0 0 2 2
##      plot plantid treatment      date BD FF SG SD TF
## 130 WC11 WC11-7 C 2016-05-28 8 0 0 0 8
## 288 WC11 WC11-7 C 2016-05-31 6 0 0 0 6
## 446 WC11 WC11-7 C 2016-06-03 3 0 0 0 3
## 604 WC11 WC11-7 C 2016-06-06 3 0 0 0 3
## 762 WC11 WC11-7 C 2016-06-09 0 3 0 0 3
## 920 WC11 WC11-7 C 2016-06-12 0 2 1 0 3
## 1078 WC11 WC11-7 C 2016-06-15 0 0 2 1 3
## 1237 WC11 WC11-7 C 2016-06-22 0 0 0 3 3
## 1396 WC11 WC11-7 C 2016-06-25 0 0 0 3 3
##      plot plantid treatment      date BD FF SG SD TF
## 315 WH12 WH12-10 H 2016-05-31 0 0 0 0 0
##      plot plantid treatment      date BD FF SG SD TF
## 316 WH12 WH12-11 H 2016-05-31 0 0 0 0 0
##      plot plantid treatment      date BD FF SG SD TF
## 103 WHSR9 WHSR9-1 H 2016-05-28 9 0 0 0 9
## 261 WHSR9 WHSR9-1 H 2016-05-31 8 0 0 0 8
## 419 WHSR9 WHSR9-1 H 2016-06-03 8 1 0 0 9
## 577 WHSR9 WHSR9-1 H 2016-06-06 5 3 0 0 8
## 735 WHSR9 WHSR9-1 H 2016-06-09 4 5 0 0 9
## 893 WHSR9 WHSR9-1 H 2016-06-12 0 8 1 0 9
## 1051 WHSR9 WHSR9-1 H 2016-06-15 1 4 4 0 9
## 1210 WHSR9 WHSR9-1 H 2016-06-22 0 1 1 8 10
## 1369 WHSR9 WHSR9-1 H 2016-06-25 0 0 1 9 10
##      plot plantid treatment      date BD FF SG SD TF
## 104 WHSR9 WHSR9-2 H 2016-05-28 10 0 0 0 10
## 262 WHSR9 WHSR9-2 H 2016-05-31 11 0 0 0 11
## 420 WHSR9 WHSR9-2 H 2016-06-03 11 1 0 0 12
## 578 WHSR9 WHSR9-2 H 2016-06-06 6 5 0 0 11
## 736 WHSR9 WHSR9-2 H 2016-06-09 6 9 0 0 15
## 894 WHSR9 WHSR9-2 H 2016-06-12 2 9 4 0 15
## 1052 WHSR9 WHSR9-2 H 2016-06-15 0 6 9 0 15
## 1211 WHSR9 WHSR9-2 H 2016-06-22 0 0 0 12 12
## 1370 WHSR9 WHSR9-2 H 2016-06-25 0 0 0 15 15
##      plot plantid treatment      date BD FF SG SD TF
## 105 WHSR9 WHSR9-3 H 2016-05-28 8 0 0 0 8
## 263 WHSR9 WHSR9-3 H 2016-05-31 6 0 0 0 6
## 421 WHSR9 WHSR9-3 H 2016-06-03 8 0 0 0 8
## 579 WHSR9 WHSR9-3 H 2016-06-06 8 0 0 0 8
## 737 WHSR9 WHSR9-3 H 2016-06-09 0 8 0 0 8
## 895 WHSR9 WHSR9-3 H 2016-06-12 0 7 1 0 8
## 1053 WHSR9 WHSR9-3 H 2016-06-15 0 0 8 0 8
## 1212 WHSR9 WHSR9-3 H 2016-06-22 0 0 0 8 8
## 1371 WHSR9 WHSR9-3 H 2016-06-25 0 0 0 8 8
##      plot plantid treatment      date BD FF SG SD TF
## 106 WHSR9 WHSR9-4 H 2016-05-28 4 0 0 0 4
## 264 WHSR9 WHSR9-4 H 2016-05-31 5 0 0 0 5
## 422 WHSR9 WHSR9-4 H 2016-06-03 6 0 0 0 6
## 580 WHSR9 WHSR9-4 H 2016-06-06 6 1 0 0 7
## 738 WHSR9 WHSR9-4 H 2016-06-09 2 6 0 0 8
## 896 WHSR9 WHSR9-4 H 2016-06-12 0 4 2 0 6
## 1054 WHSR9 WHSR9-4 H 2016-06-15 0 1 5 0 6
## 1213 WHSR9 WHSR9-4 H 2016-06-22 0 1 0 5 6

```

##	1372	WHSR9	WHSR9-4	H	2016-06-25	0	0	1	4	5
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	113	WSR10	WSR10-1	C	2016-05-28	24	0	0	0	24
##	271	WSR10	WSR10-1	C	2016-05-31	24	0	0	0	24
##	429	WSR10	WSR10-1	C	2016-06-03	22	0	0	0	22
##	587	WSR10	WSR10-1	C	2016-06-06	9	13	0	0	22
##	745	WSR10	WSR10-1	C	2016-06-09	2	16	0	0	18
##	903	WSR10	WSR10-1	C	2016-06-12	2	6	8	0	16
##	1061	WSR10	WSR10-1	C	2016-06-15	0	2	14	0	16
##	1220	WSR10	WSR10-1	C	2016-06-22	0	0	0	16	16
##	1379	WSR10	WSR10-1	C	2016-06-25	0	0	0	18	18
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	115	WSR10	WSR10-3	C	2016-05-28	2	0	0	0	2
##	273	WSR10	WSR10-3	C	2016-05-31	2	0	0	0	2
##	431	WSR10	WSR10-3	C	2016-06-03	1	1	0	0	2
##	589	WSR10	WSR10-3	C	2016-06-06	1	1	0	0	2
##	747	WSR10	WSR10-3	C	2016-06-09	0	1	0	0	1
##	905	WSR10	WSR10-3	C	2016-06-12	0	0	1	0	1
##	1063	WSR10	WSR10-3	C	2016-06-15	0	0	1	0	1
##	1222	WSR10	WSR10-3	C	2016-06-22	0	0	0	1	1
##	1381	WSR10	WSR10-3	C	2016-06-25	0	0	0	2	2
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	119	WSR10	WSR10-7	C	2016-05-28	27	0	0	0	27
##	277	WSR10	WSR10-7	C	2016-05-31	18	0	0	0	18
##	435	WSR10	WSR10-7	C	2016-06-03	5	8	0	0	13
##	593	WSR10	WSR10-7	C	2016-06-06	2	10	0	0	12
##	751	WSR10	WSR10-7	C	2016-06-09	0	2	8	0	10
##	909	WSR10	WSR10-7	C	2016-06-12	0	0	11	0	11
##	1067	WSR10	WSR10-7	C	2016-06-15	0	0	8	3	11
##	1226	WSR10	WSR10-7	C	2016-06-22	0	0	0	9	9
##	1385	WSR10	WSR10-7	C	2016-06-25	0	0	0	11	11
##		plot	plantid	treatment	date	BD	FF	SG	SD	TF
##	121	WSR10	WSR10-9	C	2016-05-28	4	0	0	0	4
##	279	WSR10	WSR10-9	C	2016-05-31	5	0	0	0	5
##	437	WSR10	WSR10-9	C	2016-06-03	1	0	0	0	1
##	595	WSR10	WSR10-9	C	2016-06-06	1	0	0	0	1
##	753	WSR10	WSR10-9	C	2016-06-09	0	0	0	0	0
##	911	WSR10	WSR10-9	C	2016-06-12	0	0	0	0	0
##	1069	WSR10	WSR10-9	C	2016-06-15	0	0	0	0	0
##	1228	WSR10	WSR10-9	C	2016-06-22	0	0	0	0	0
##	1387	WSR10	WSR10-9	C	2016-06-25	0	0	0	1	1