

HW2_GUO

Qing Guo

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Problem 3

Version control allows me to manage data and manage software configuration. Version control systems enable me to compare files, identify differences, and merge the changes if needed prior to committing any code.

Problem 4

a. Sensory data from five operators

```
url<-"https://www2.isye.gatech.edu/~jeffwu/wuhamadabook/data/Sensory.dat"
a<-read.table(url,header=T,sep=" ",skip=1,fill=T)
for (i in 1:30){
  if (is.na(a[i,6])==TRUE){
    a[i,2:6]=a[i,1:5]
    a[i,1]=floor((i+2)/3)
  }
}
a
```

```
##      Item  X1  X2  X3  X4  X5
## 1      1 4.3 4.9 3.3 5.3 4.4
## 2      1 4.3 4.5 4.0 5.5 3.3
## 3      1 4.1 5.3 3.4 5.7 4.7
## 4      2 6.0 5.3 4.5 5.9 4.7
## 5      2 4.9 6.3 4.2 5.5 4.9
## 6      2 6.0 5.9 4.7 6.3 4.6
## 7      3 2.4 2.5 2.3 3.1 2.4
## 8      3 3.9 3.0 2.8 2.7 1.3
## 9      3 1.9 3.9 2.6 4.6 2.2
## 10     4 7.4 8.2 6.4 6.8 6.0
## 11     4 7.1 7.9 5.9 7.3 6.1
## 12     4 6.4 7.1 6.9 7.0 6.7
## 13     5 5.7 6.3 5.4 6.1 5.9
## 14     5 5.8 5.7 5.4 6.2 6.5
## 15     5 5.8 6.0 6.1 7.0 4.9
## 16     6 2.2 2.4 1.7 3.4 1.7
## 17     6 3.0 1.8 2.1 4.0 1.7
## 18     6 2.1 3.3 1.1 3.3 2.1
## 19     7 1.2 1.5 1.2 0.9 0.7
## 20     7 1.3 2.4 0.8 1.2 1.3
## 21     7 0.9 3.1 1.1 1.9 1.6
## 22     8 4.2 4.8 4.5 4.6 3.2
## 23     8 3.0 4.5 4.7 4.9 4.6
## 24     8 4.8 4.8 4.7 4.8 4.3
## 25     9 8.0 8.6 9.0 9.4 8.8
## 26     9 9.0 7.7 6.7 9.0 7.9
## 27     9 8.9 9.2 8.1 9.1 7.6
## 28    10 5.0 4.8 3.9 5.5 3.8
```

```
## 29    10 5.4 5.0 3.4 4.9 4.6
## 30    10 2.8 5.2 4.1 3.9 5.5
```

b. Gold Medal performance

```
url<-"https://www2.isye.gatech.edu/~jeffwu/wuhamadabook/data/LongJumpData.dat"
a<-read.table(url,sep=" ",skip=1,fill=T)
a=as.data.frame(a)
a1<-a[,1:2]
a2<-a[,3:4]
a3<-a[,5:6]
a4<-a[,7:8]
a1<-as.matrix(a1)
a2<-as.matrix(a2)
a3<-as.matrix(a3)
a4<-as.matrix(a4)
b<-rbind(a1,a2,a3,a4)
b<-b[1:22,]
b<-as.data.frame(b)
colnames(b)<-c("year","long jump")
b
```

```
##      year long jump
## 1      -4    249.75
## 2       0    282.88
## 3       4    289.00
## 4       8    294.50
## 5      12    299.25
## 6      20    281.50
## 7      24    293.13
## 8      28    304.75
## 9      32    300.75
## 10     36    317.31
## 11     48    308.00
## 12     52    298.00
## 13     56    308.25
## 14     60    319.75
## 15     64    317.75
## 16     68    350.50
## 17     72    324.50
## 18     76    328.50
## 19     80    336.25
## 20     84    336.25
## 21     88    343.25
## 22     92    342.50
```

c. Brain weight (g) and body weight (kg)

```
url<-"https://www2.isye.gatech.edu/~jeffwu/wuhamadabook/data/BrainandBodyWeight.dat"
a<-read.table(url,sep=" ",skip=1,fill=T)
a1<-a[,1:2]
a2<-a[,3:4]
a3<-a[,5:6]
a1<-as.matrix(a1)
a2<-as.matrix(a2)
a3<-as.matrix(a3)
```

```

b<-rbind(a1,a2,a3)
b<-b[1:62,]
b<-as.data.frame(b)
colnames(b)<-c("Body WT","Brain WT")
b

```

```

##      Body WT Brain WT
## 1      3.385   44.50
## 2      0.480   15.50
## 3      1.350    8.10
## 4    465.000  423.00
## 5     36.330  119.50
## 6     27.660  115.00
## 7     14.830   98.20
## 8      1.040    5.50
## 9      4.190   58.00
## 10     0.425    6.40
## 11     0.101    4.00
## 12     0.920    5.70
## 13     1.000    6.60
## 14     0.005    0.10
## 15     0.060    1.00
## 16     3.500   10.80
## 17     2.000   12.30
## 18     1.700    6.30
## 19  2547.000 4603.00
## 20      0.023    0.30
## 21   187.100  419.00
## 22   521.000  655.00
## 23      0.785    3.50
## 24    10.000  115.00
## 25      3.300   25.60
## 26      0.200    5.00
## 27      1.410   17.50
## 28   529.000  680.00
## 29   207.000  406.00
## 30    85.000  325.00
## 31      0.750   12.30
## 32    62.000 1320.00
## 33  6654.000 5712.00
## 34      3.500    3.90
## 35      6.800  179.00
## 36    35.000   56.00
## 37      4.050   17.00
## 38      0.120    1.00
## 39      0.023    0.40
## 40      0.010    0.30
## 41      1.400   12.50
## 42   250.000  490.00
## 43      2.500   12.10
## 44    55.500  175.00
## 45   100.000  157.00
## 46    52.160  440.00
## 47    10.550  179.50

```

```
## 48    0.550    2.40
## 49   60.000   81.00
## 50    3.600   21.00
## 51    4.288   39.20
## 52    0.280    1.90
## 53    0.075    1.20
## 54    0.122    3.00
## 55    0.048    0.33
## 56   192.000  180.00
## 57    3.000   25.00
## 58   160.000  169.00
## 59    0.900    2.60
## 60    1.620   11.40
## 61    0.104    2.50
## 62    4.235   50.40
```

d. Triplicate measurements of tomato yield

```
#install.packages("stringr")
library(stringr)
url<-"https://www2.isye.gatech.edu/~jeffwu/wuhamadabook/data/tomato.dat"
a<-read.table(url,sep=" ",skip=1,fill=T,comment.char="")
a<-as.data.frame(a)
d<-c()
for (i in 1:2){
  for (j in 1:3){
    bi_j<-a[i,j]
    bi_j<-unlist(str_split(bi_j," "))
    bi_j<-as.numeric(bi_j[1:3])
    d<-c(d,bi_j)
  }
}
b1<-d[1:9]
b2<-d[10:18]
dataframe<-cbind(b1,b2)
colnames(dataframe)<-c("Ife\\#1","PusaEarlyDwarf")
rownames(dataframe)<-c(rep(10000,3),rep(20000,3),rep(30000,3))
dataframe
```

```
##      Ife\\#1 PusaEarlyDwarf
## 10000    16.1          8.1
## 10000    15.3          8.6
## 10000    17.5         10.1
## 20000    16.6         12.7
## 20000    19.2         13.7
## 20000    18.5         11.5
## 30000    20.8         14.4
## 30000    18.0         15.4
## 30000    21.0         13.7
```

Problem 5

```
#install.packages("swirl")
library(swirl)
```

```
##
## | Hi! I see that you have some variables saved in your workspace. To keep
## | things running smoothly, I recommend you clean up before starting swirl.
##
## | Type ls() to see a list of the variables in your workspace. Then, type
## | rm(list=ls()) to clear your workspace.
##
## | Type swirl() when you are ready to begin.
install_course("R_Programming_E")
```

```
##
|
|                                     | 0%
|
|=                                  | 2%
|
|==                                 | 3%
|
|===                               | 5%
|
|====                             | 8%
|
|=====                          | 10%
|
|=====                          | 12%
|
|=====                          | 15%
|
|=====                          | 17%
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|=====                          | 18%
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|=====                          | 31%
|
|=====                          | 33%
|
|=====                          | 37%
|
|=====                          | 38%
|
|=====                          | 42%
|
|=====                          | 46%
|
```

=====	48%
=====	49%
=====	51%
=====	53%
=====	54%
=====	58%
=====	62%
=====	64%
=====	66%
=====	69%
=====	70%
=====	71%
=====	73%
=====	77%
=====	78%
=====	80%
=====	82%
=====	84%
=====	87%
=====	91%
=====	93%
=====	93%
=====	94%
=====	99%
=====	100%

```
##
## | Course installed successfully!
```

```
swirl()
bye()
```

```
##
## | Leaving swirl now. Type swirl() to resume.
# Path to data
.datapath <- file.path(path.package('swirl'), 'Courses',
                        'R_Programming_E', 'Looking_at_Data',
                        'plant-data.txt')
# Read in data
plants <- read.csv(.datapath, strip.white=TRUE, na.strings="")

.cols2rm <- c('Accepted.Symbol', 'Synonym.Symbol')
plants <- plants[, !(names(plants) %in% .cols2rm)]
# Make names pretty
names(plants) <- c('Scientific_Name', 'Duration', 'Active_Growth_Period',
                  'Foliage_Color', 'pH_Min', 'pH_Max',
                  'Precip_Min', 'Precip_Max',
                  'Shade_Tolerance', 'Temp_Min_F')
na_plants<-apply(is.na(plants),1,sum)
plants<-plants[-which((na_plants)>0),]
plants<-plants[,c(1,4,5,6)]
plants$PH_Mean<-(plants$pH_Min+plants$pH_Max)/2
plants$Foliage_Color<-factor(plants$Foliage_Color)
plants
```

	Scientific_Name	Foliage_Color	pH_Min
## 4	Abies balsamea	Green	4.0
## 9	Acacia constricta	Green	7.0
## 14	Acalypha virginica	Green	5.9
## 17	Acer negundo	Green	5.0
## 19	Acer nigrum	Green	4.5
## 20	Acer pensylvanicum	Green	4.4
## 21	Acer platanoides	Green	4.8
## 22	Acer pseudoplatanus	Yellow-Green	5.8
## 23	Acer rubrum	Green	4.7
## 26	Acer saccharinum	Green	4.0
## 27	Acer saccharum	Green	3.7
## 29	Acer spicatum	Green	4.8
## 31	Achillea millefolium	Green	6.0
## 32	Achillea millefolium var. occidentalis	Green	6.0
## 43	Acorus calamus	Green	5.2
## 51	Adiantum capillus-veneris	Green	6.0
## 52	Adiantum pedatum	Dark Green	4.6
## 63	Aesculus flava	Green	5.0
## 90	Agrimonia gryposepala	Green	4.5
## 92	Agrimonia parviflora	Green	6.0
## 94	Agrimonia rostellata	Green	4.5
## 95	Agrimonia striata	Green	5.5
## 99	Agrostis canina	Green	5.0
## 100	Agrostis capillaris	Green	4.9
## 102	Agrostis gigantea	Green	4.5
## 103	Agrostis hyemalis	Green	5.0
## 104	Agrostis perennans	Green	5.5
## 105	Agrostis scabra	Green	6.0
## 106	Agrostis stolonifera	Green	5.1
## 108	Ailanthus altissima	Green	4.1

## 117	Ajuga reptans	Green	5.5
## 121	Albizia julibrissin	White-Gray	4.8
## 128	Alisma subcordatum	Green	5.0
## 146	Alnus incana	Green	5.0
## 147	Alnus incana ssp. rugosa	Dark Green	4.8
## 148	Alnus maritima	Green	5.0
## 149	Alnus serrulata	Green	5.0
## 151	Alopecurus aequalis	Green	5.5
## 153	Alopecurus carolinianus	Green	4.0
## 154	Alopecurus geniculatus	Green	4.0
## 156	Alopecurus myosuroides	Green	4.0
## 157	Alopecurus pratensis	Green	5.8
## 187	Amelanchier arborea	Dark Green	4.8
## 189	Amelanchier canadensis	Green	5.5
## 192	Amelanchier laevis	Green	4.8
## 194	Amelanchier obovalis	Dark Green	5.0
## 195	Amelanchier sanguinea	Green	4.5
## 201	Ammannia coccinea	Green	4.0
## 204	Ammophila arenaria	Green	6.0
## 205	Ammophila breviligulata	Green	5.8
## 207	Amorpha fruticosa	Green	5.0
## 209	Ampelopsis arborea	Green	4.0
## 211	Ampelopsis cordata	Green	5.2
## 226	Anaphalis margaritacea	Green	6.0
## 231	Andropogon gerardii	Green	6.0
## 233	Andropogon glomeratus	Green	5.0
## 238	Andropogon ternarius	Green	4.0
## 240	Andropogon virginicus	Green	4.9
## 258	Antennaria neglecta	Dark Green	5.5
## 279	Apios americana	Green	6.0
## 286	Apocynum cannabinum	Green	4.5
## 307	Aralia nudicaulis	Dark Green	5.0
## 310	Aralia spinosa	Green	4.8
## 316	Arctostaphylos uva-ursi	Dark Green	5.5
## 326	Argentina anserina	Green	7.0
## 329	Arisaema triphyllum	Green	4.8
## 359	Arrhenatherum elatius	Green	5.0
## 368	Artemisia ludoviciana	White-Gray	6.0
## 381	Arundinaria gigantea	Dark Green	5.0
## 384	Arundo donax	Green	4.8
## 390	Asclepias incarnata	Green	5.0
## 400	Asclepias tuberosa	Green	4.8
## 406	Asimina triloba	Dark Green	4.7
## 438	Astragalus canadensis	Green	6.0
## 444	Athyrium filix-femina	Green	4.5
## 466	Avena fatua	Green	6.0
## 467	Avena sativa	Green	5.3
## 473	Baccharis halimifolia	Dark Green	5.5
## 479	Bacopa rotundifolia	Green	5.4
## 488	Baptisia tinctoria	Gray-Green	5.8
## 504	Berberis thunbergii	Dark Green	5.5
## 511	Betula alleghaniensis	Green	4.0
## 514	Betula lenta	Green	3.6
## 515	Betula nigra	Green	3.0

## 516	<i>Betula papyrifera</i>	Green	4.2
## 518	<i>Betula populifolia</i>	Green	3.5
## 522	<i>Bidens aristosa</i>	Green	5.0
## 526	<i>Bidens cernua</i>	Green	5.1
## 527	<i>Bidens connata</i>	Green	5.2
## 528	<i>Bidens coronata</i>	Green	5.2
## 529	<i>Bidens discoidea</i>	Green	5.1
## 530	<i>Bidens frondosa</i>	Green	5.2
## 531	<i>Bidens laevis</i>	Green	5.0
## 532	<i>Bidens mitis</i>	Green	5.0
## 535	<i>Bidens tripartita</i>	Green	5.0
## 546	<i>Boehmeria cylindrica</i>	Green	5.1
## 552	<i>Boltonia asteroides</i>	Green	5.3
## 557	<i>Borrchia frutescens</i>	Green	6.1
## 559	<i>Bothriochloa pertusa</i>	Green	5.0
## 564	<i>Botrychium lanceolatum</i>	Green	4.4
## 570	<i>Botrychium virginianum</i>	Green	5.6
## 575	<i>Bouteloua curtipendula</i>	Green	5.5
## 577	<i>Bouteloua hirsuta</i>	Green	6.0
## 586	<i>Brassica juncea</i>	Dark Green	6.0
## 587	<i>Brassica napus</i>	Dark Green	6.0
## 590	<i>Brassica rapa</i>	Green	5.0
## 599	<i>Bromus arvensis</i>	Green	5.2
## 600	<i>Bromus briziformis</i>	Green	5.3
## 601	<i>Bromus catharticus</i>	Green	5.5
## 602	<i>Bromus ciliatus</i>	Green	5.5
## 607	<i>Bromus hordeaceus</i> ssp. <i>hordeaceus</i>	Green	5.5
## 608	<i>Bromus inermis</i>	Green	5.5
## 611	<i>Bromus kalmii</i>	Green	5.7
## 617	<i>Bromus rubens</i>	Green	6.0
## 639	<i>Cabomba caroliniana</i>	Gray-Green	5.7
## 642	<i>Cajanus cajan</i>	Green	5.0
## 650	<i>Calamagrostis canadensis</i>	Green	4.5
## 652	<i>Calamagrostis coarctata</i>	Green	4.0
## 664	<i>Callicarpa americana</i>	Green	4.8
## 671	<i>Callitriche palustris</i>	Green	5.2
## 678	<i>Caltha palustris</i>	Green	4.9
## 694	<i>Camassia scilloides</i>	Green	4.2
## 700	<i>Campanula aparinoides</i>	Green	6.0
## 705	<i>Campanulastrum americanum</i>	Green	5.5
## 707	<i>Campsis radicans</i>	Green	4.9
## 718	<i>Caragana arborescens</i>	Green	5.0
## 721	<i>Cardamine bulbosa</i>	Green	5.0
## 724	<i>Cardamine douglassii</i>	Green	6.0
## 730	<i>Cardamine pensylvanica</i>	Green	4.8
## 741	<i>Carex abscondita</i>	Green	4.8
## 750	<i>Carex albolutescens</i>	Green	4.3
## 752	<i>Carex amphibola</i>	Green	5.9
## 755	<i>Carex aquatilis</i>	Green	4.0
## 760	<i>Carex atlantica</i>	Green	4.5
## 764	<i>Carex baileyi</i>	Green	4.8
## 766	<i>Carex blanda</i>	Green	4.4
## 773	<i>Carex bushii</i>	Green	5.8
## 775	<i>Carex canescens</i>	Gray-Green	5.1

## 782	Carex cephalophora	Green	4.8
## 786	Carex comosa	Green	4.6
## 791	Carex crinita	Green	4.0
## 794	Carex cristatella	Green	4.9
## 796	Carex debilis	Green	4.6
## 801	Carex decomposita	Green	4.5
## 802	Carex diandra	Green	5.0
## 812	Carex echinata	Green	5.6
## 820	Carex flaccosperma	Gray-Green	4.6
## 822	Carex frankii	Green	5.9
## 824	Carex glaucescens	Green	4.0
## 827	Carex gracillima	Dark Green	4.7
## 828	Carex granularis	Green	6.0
## 832	Carex grayi	Green	5.7
## 841	Carex hyalinolepis	Gray-Green	5.6
## 843	Carex interior	Green	5.4
## 844	Carex intumescens	Dark Green	4.8
## 846	Carex jorii	Green	4.7
## 849	Carex lacustris	Green	5.6
## 859	Carex leptalea	Green	4.8
## 862	Carex leptonervia	Green	5.0
## 869	Carex lupulina	Green	6.2
## 870	Carex lurida	Green	4.9
## 875	Carex molesta	Green	4.9
## 881	Carex normalis	Green	4.7
## 892	Carex polymorpha	Dark Green	4.8
## 893	Carex prasina	Green	4.8
## 894	Carex projecta	Green	4.8
## 902	Carex scabrata	Green	4.7
## 903	Carex scoparia	Green	4.6
## 906	Carex shortiana	Green	4.7
## 909	Carex sparganioides	Dark Green	5.0
## 911	Carex squarrosa	Green	5.6
## 912	Carex stipata	Green	4.9
## 915	Carex straminea	Green	4.7
## 920	Carex stricta	Green	3.5
## 923	Carex tenera	Green	4.9
## 929	Carex torta	Green	5.0
## 930	Carex tribuloides	Green	4.8
## 933	Carex trichocarpa	Green	5.7
## 934	Carex trisperma	Green	4.5
## 937	Carex typhina	Green	5.7
## 939	Carex utriculata	Green	5.7
## 943	Carex vesicaria	Green	4.5
## 946	Carex viridula	Green	4.5
## 947	Carex vulpinoidea	Green	6.8
## 952	Carpinus caroliniana	Green	4.0
## 958	Carya cordiformis	Green	4.8
## 959	Carya glabra	Green	4.8
## 960	Carya illinoensis	Yellow-Green	4.5
## 961	Carya laciniosa	Green	5.0
## 963	Carya ovata	Green	4.0
## 967	Castanea dentata	Yellow-Green	5.5
## 972	Castilleja coccinea	Green	4.9

## 974	Catalpa bignonioides	Green	5.5
## 976	Catalpa speciosa	Dark Green	5.5
## 978	Caulophyllum thalictroides	Green	4.5
## 980	Ceanothus americanus	Green	4.3
## 982	Celastrus orbiculatus	Green	5.0
## 983	Celastrus scandens	Green	5.0
## 987	Celtis laevigata	Green	4.4
## 989	Celtis occidentalis	Green	6.0
## 1017	Cephalanthus occidentalis	Green	4.7
## 1031	Ceratophyllum demersum	Gray-Green	6.0
## 1034	Cercis canadensis	Green	5.0
## 1037	Chaenomeles japonica	Green	4.5
## 1049	Chamaecrista fasciculata	Green	5.5
## 1056	Chamaecyparis thyoides	Green	3.5
## 1058	Chamaedaphne calyculata	Yellow-Green	5.0
## 1075	Chasmanthium latifolium	Green	5.0
## 1076	Chasmanthium laxum	Green	4.5
## 1104	Chenopodium rubrum	Green	6.0
## 1112	Chimaphila umbellata	Green	5.4
## 1115	Chionanthus virginicus	Green	4.5
## 1133	Cichorium intybus	Green	6.0
## 1139	Cinna arundinacea	Green	4.0
## 1140	Cinna latifolia	Green	4.7
## 1142	Circaea alpina	Green	5.0
## 1178	Clematis virginiana	Green	5.0
## 1187	Clethra alnifolia	Green	4.5
## 1191	Clintonia borealis	Green	5.0
## 1198	Coelorachis rugosa	Green	5.0
## 1212	Commelina diffusa	Yellow-Green	5.2
## 1216	Commelina virginica	Green	4.7
## 1218	Comptonia peregrina	Green	4.0
## 1222	Conoclinium coelestinum	Green	5.5
## 1231	Convallaria majalis	Green	5.5
## 1235	Conyza canadensis	Green	4.8
## 1250	Coreopsis lanceolata	Green	6.0
## 1252	Coreopsis tinctoria	Green	5.2
## 1259	Cornus alternifolia	Dark Green	4.8
## 1260	Cornus amomum	Green	5.0
## 1261	Cornus canadensis	Dark Green	5.5
## 1262	Cornus florida	Green	4.8
## 1263	Cornus foemina	Green	5.8
## 1265	Cornus racemosa	Green	4.8
## 1266	Cornus rugosa	Green	6.4
## 1268	Cornus sericea ssp. sericea	Green	4.8
## 1275	Corydalis flavula	White-Gray	4.8
## 1278	Corylus americana	Green	5.0
## 1279	Corylus cornuta	Green	4.8
## 1292	Crataegus crus-galli	Green	4.5
## 1304	Crataegus phaenopyrum	Green	4.3
## 1309	Crataegus viridis	Yellow-Green	4.3
## 1360	Cydonia oblonga	Green	5.0
## 1371	Cynodon dactylon	Green	5.0
## 1380	Cyperus acuminatus	Green	4.9
## 1381	Cyperus bipartitus	Green	4.5

## 1382	Cyperus compressus	Green	5.0
## 1388	Cyperus erythrorhizos	Dark Green	5.0
## 1389	Cyperus esculentus	Green	5.0
## 1393	Cyperus flavescens	Green	5.0
## 1400	Cyperus lancastricensis	Green	5.0
## 1404	Cyperus odoratus	Green	5.0
## 1406	Cyperus polystachyos	Green	4.5
## 1408	Cyperus pseudovegetus	Green	4.6
## 1415	Cyperus strigosus	Green	6.4
## 1429	Cytisus scoparius	Green	5.5
## 1432	Dactylis glomerata	Green	5.0
## 1446	Danthonia compressa	Green	4.8
## 1459	Decodon verticillatus	Green	4.9
## 1469	Deschampsia flexuosa	Green	4.8
## 1476	Desmanthus illinoensis	Green	5.0
## 1495	Desmodium paniculatum	Green	6.0
## 1498	Desmodium perplexum	Green	5.6
## 1520	Dichanthelium aciculare	Gray-Green	4.0
## 1527	Dichanthelium clandestinum	Green	4.0
## 1528	Dichanthelium commutatum	Green	4.0
## 1534	Dichanthelium latifolium	Green	4.0
## 1543	Dichanthelium ovale	Green	4.0
## 1550	Dichanthelium scabriusculum	Green	4.0
## 1551	Dichanthelium scoparium	Gray-Green	4.5
## 1563	Diervilla lonicera	Dark Green	4.8
## 1567	Digitalis purpurea	Dark Green	5.5
## 1590	Diospyros virginiana	Dark Green	4.7
## 1602	Distichlis spicata	Green	6.4
## 1604	Dodecatheon meadia	Green	4.5
## 1629	Dryopteris cristata	Dark Green	3.5
## 1642	Dulichium arundinaceum	Dark Green	4.7
## 1652	Echinacea pallida	Green	6.5
## 1653	Echinacea purpurea	Green	6.5
## 1655	Echinochloa colona	Green	4.0
## 1659	Echinochloa frumentacea	Green	4.7
## 1663	Echinochloa walteri	Green	3.8
## 1674	Eclipta prostrata	Green	5.2
## 1678	Elaeagnus angustifolia	White-Gray	6.0
## 1679	Elaeagnus commutata	White-Gray	5.0
## 1681	Elaeagnus umbellata	White-Gray	5.0
## 1703	Eleocharis obtusa	Dark Green	4.1
## 1707	Eleocharis palustris	Dark Green	4.0
## 1713	Eleocharis tenuis	Dark Green	6.2
## 1721	Elephantopus carolinianus	Dark Green	5.0
## 1729	Elodea canadensis	Gray-Green	4.8
## 1732	Elymus canadensis	Green	5.0
## 1738	Elymus repens	Green	5.2
## 1739	Elymus riparius	Dark Green	4.5
## 1742	Elymus trachycaulus ssp. trachycaulus	Green	5.6
## 1744	Elymus virginicus	Green	5.0
## 1756	Epilobium coloratum	Green	4.5
## 1758	Epilobium leptophyllum	Green	4.0
## 1763	Equisetum arvense	Green	4.0
## 1765	Equisetum fluviatile	Green	4.5

## 1769	Equisetum sylvaticum	Green	4.0
## 1774	Eragrostis curvula	Green	4.5
## 1778	Eragrostis hypnoides	Green	4.5
## 1787	Eragrostis spectabilis	Green	4.0
## 1797	Erigeron philadelphicus	Green	4.8
## 1802	Erigeron strigosus	Green	4.8
## 1807	Eriocaulon decangulare	Dark Green	4.0
## 1816	Eriophorum gracile	Green	4.0
## 1818	Eriophorum virginicum	Green	3.8
## 1835	Erysimum capitatum var. capitatum	Green	6.0
## 1903	Eurybia macrophylla	Dark Green	4.9
## 1923	Fagus grandifolia	Green	4.1
## 1931	Festuca rubra	Green	5.0
## 1933	Festuca subverticillata	Green	5.5
## 1959	Forsythia suspensa	Green	5.0
## 1970	Fraxinus americana	Green	4.7
## 1971	Fraxinus nigra	Green	4.4
## 1972	Fraxinus pennsylvanica	Yellow-Green	4.7
## 1973	Fraxinus profunda	Green	4.5
## 2000	Galium aparine	Green	5.4
## 2001	Galium asprellum	Green	5.0
## 2002	Galium boreale	Green	5.0
## 2011	Galium obtusum	Green	4.6
## 2019	Galium tinctorium	Green	4.6
## 2021	Galium trifidum	Green	4.6
## 2030	Gaultheria hispidula	Dark Green	4.0
## 2031	Gaultheria procumbens	Dark Green	4.0
## 2036	Gaylussacia baccata	Green	4.5
## 2038	Gaylussacia dumosa	Green	4.3
## 2039	Gaylussacia frondosa	Green	3.8
## 2044	Gentiana andrewsii	Green	5.8
## 2048	Gentiana clausa	Green	5.8
## 2074	Geum canadense	Green	4.5
## 2076	Geum laciniatum	Green	5.0
## 2079	Geum rivale	Green	4.8
## 2080	Geum verum	Green	4.8
## 2091	Glaux maritima	Green	6.5
## 2097	Gleditsia triacanthos	Green	4.8
## 2102	Glyceria canadensis	Green	5.0
## 2107	Glyceria melicaria	Green	4.5
## 2108	Glyceria obtusa	Green	4.0
## 2110	Glyceria striata	Green	4.0
## 2112	Glycine max	Green	5.5
## 2159	Hamamelis virginiana	Green	4.5
## 2166	Hedera helix	Green	5.2
## 2170	Helenium autumnale	Green	4.0
## 2172	Helenium flexuosum	Green	4.5
## 2178	Helianthus angustifolius	Dark Green	4.0
## 2179	Helianthus annuus	Green	5.5
## 2180	Helianthus debilis	Green	5.2
## 2185	Helianthus grosseserratus	Dark Green	5.8
## 2200	Helianthus tuberosus	Yellow-Green	4.0
## 2205	Heliotropium curassavicum	Gray-Green	6.5
## 2223	Heracleum maximum	Green	5.4

## 2232	Hesperis matronalis	Green	5.0
## 2254	Hibiscus laevis	Green	5.5
## 2255	Hibiscus moscheutos	Gray-Green	4.0
## 2275	Holcus lanatus	White-Gray	4.0
## 2282	Hordeum brachyantherum	Green	6.0
## 2289	Hordeum pusillum	Green	6.2
## 2290	Hordeum vulgare	Green	5.0
## 2305	Hudsonia tomentosa	Gray-Green	5.5
## 2333	Hydrolea quadrivalvis	Green	5.7
## 2349	Hypericum ascyron	Green	5.7
## 2351	Hypericum crux-andreae	Green	4.6
## 2352	Hypericum densiflorum	Green	4.0
## 2353	Hypericum denticulatum	Green	4.8
## 2357	Hypericum gentianoides	Green	4.6
## 2362	Hypericum mutilum	Green	4.6
## 2364	Hypericum prolificum	Green	4.6
## 2365	Hypericum punctatum	Green	4.6
## 2370	Hypoxis hirsuta	Green	5.2
## 2372	Ilex decidua	Dark Green	3.5
## 2373	Ilex glabra	Green	4.5
## 2377	Ilex opaca	Green	4.5
## 2379	Ilex verticillata	Green	4.5
## 2381	Impatiens capensis	Green	6.4
## 2382	Impatiens pallida	Green	6.8
## 2410	Iris virginica	Green	4.8
## 2426	Itea virginica	Green	4.0
## 2428	Iva frutescens	Green	5.0
## 2439	Juglans cinerea	Green	6.0
## 2440	Juglans nigra	Green	4.6
## 2442	Juncus acuminatus	Green	4.4
## 2446	Juncus articulatus	Green	4.8
## 2447	Juncus biflorus	Green	4.5
## 2448	Juncus brachycarpus	Green	4.5
## 2449	Juncus brachycephalus	Green	5.9
## 2451	Juncus bufonius	Green	4.6
## 2454	Juncus canadensis	Green	4.5
## 2458	Juncus dichotomus	Red	4.5
## 2461	Juncus effusus	Dark Green	5.5
## 2471	Juncus marginatus	Green	5.5
## 2472	Juncus megacephalus	Green	4.5
## 2476	Juncus repens	Green	5.5
## 2477	Juncus roemerianus	Dark Green	4.0
## 2478	Juncus scirpoides	Green	5.6
## 2479	Juncus secundus	Green	4.9
## 2480	Juncus subcaudatus	Green	4.5
## 2482	Juncus tenuis	Green	4.5
## 2483	Juncus torreyi	Green	4.5
## 2485	Juncus validus	Green	5.0
## 2488	Juniperus communis	Green	5.5
## 2490	Juniperus virginiana	Green	4.7
## 2493	Justicia americana	Dark Green	5.4
## 2498	Kalmia latifolia	Green	4.5
## 2506	Koeleria macrantha	Green	6.0
## 2508	Koeleria paniculata	Green	4.5

## 2517	Kummerowia stipulacea	Green	5.5
## 2518	Kummerowia striata	Green	4.9
## 2524	Lablab purpureus	Green	4.5
## 2526	Lachnanthes caroliana	Gray-Green	4.0
## 2539	Lagerstroemia indica	Green	5.0
## 2554	Larix decidua	Yellow-Green	6.0
## 2555	Larix laricina	Dark Green	5.5
## 2558	Lathyrus hirsutus	Yellow-Green	5.8
## 2578	Leersia lenticularis	Green	5.0
## 2579	Leersia oryzoides	Dark Green	5.1
## 2580	Leersia virginica	Green	4.5
## 2610	Leptochloa dubia	Green	6.0
## 2612	Leptochloa fusca ssp. fascicularis	Green	4.0
## 2617	Lespedeza capitata	Green	5.7
## 2620	Lespedeza hirta	Dark Green	5.8
## 2631	Leucanthemum vulgare	Green	5.2
## 2641	Liatris spicata	Green	5.6
## 2652	Ligustrum amurense	Green	5.8
## 2653	Ligustrum japonicum	Dark Green	5.5
## 2656	Ligustrum ovalifolium	Green	5.9
## 2659	Ligustrum vulgare	Green	5.0
## 2671	Limnobium spongia	Green	5.0
## 2673	Limonium carolinianum	Green	6.0
## 2681	Lindera benzoin	Green	4.5
## 2697	Linum striatum	Green	5.0
## 2708	Liquidambar styraciflua	Green	4.5
## 2710	Liriodendron tulipifera	Green	4.5
## 2712	Liriope muscari	Green	5.0
## 2726	Lobelia cardinalis	Green	5.8
## 2744	Lolium perenne	Green	5.0
## 2745	Lolium perenne ssp. multiflorum	Green	5.0
## 2754	Lonicera japonica	Green	4.9
## 2755	Lonicera maackii	Green	5.5
## 2757	Lonicera sempervirens	Green	6.0
## 2759	Lonicera tatarica	Green	5.2
## 2762	Lotus corniculatus	Green	5.0
## 2768	Ludwigia decurrens	Green	4.0
## 2774	Ludwigia palustris	Gray-Green	5.0
## 2812	Lycopodium annotinum	Green	4.0
## 2820	Lycopus americanus	Green	5.2
## 2823	Lycopus rubellus	Green	5.2
## 2827	Lycopus virginicus	Dark Green	5.0
## 2838	Lysimachia lanceolata	Green	5.0
## 2845	Lysimachia thyrsoiflora	Green	4.8
## 2855	Maclura pomifera	Green	4.5
## 2859	Magnolia acuminata	Green	5.2
## 2860	Magnolia grandiflora	Green	4.5
## 2862	Magnolia tripetala	Green	5.0
## 2863	Magnolia virginiana	Dark Green	5.0
## 2906	Maurandella antirrhiniflora	Green	6.8
## 2916	Medicago lupulina	Dark Green	5.5
## 2920	Medicago sativa	Green	6.0
## 2923	Medicago scutellata	Dark Green	5.9
## 2935	Melilotus officinalis	Green	6.5

## 2949	Mentha arvensis	Green	5.0
## 2956	Menyanthes trifoliata	Green	4.8
## 2962	Mertensia virginica	Green	4.5
## 2970	Mikania scandens	Green	5.7
## 2978	Mimulus alatus	Green	6.2
## 2990	Miscanthus sinensis	Green	4.6
## 3008	Monarda fistulosa	Gray-Green	6.0
## 3024	Morella caroliniensis	Dark Green	4.5
## 3025	Morella cerifera	Green	5.4
## 3026	Morella pensylvanica	Green	5.5
## 3028	Morus alba	Green	5.0
## 3029	Morus rubra	Green	5.0
## 3032	Muhlenbergia asperifolia	Yellow-Green	6.0
## 3034	Muhlenbergia capillaris	Yellow-Green	5.8
## 3035	Muhlenbergia frondosa	Green	5.9
## 3037	Muhlenbergia glomerata	Green	5.3
## 3038	Muhlenbergia mexicana	Green	5.5
## 3039	Muhlenbergia schreberi	Green	4.5
## 3041	Muhlenbergia sylvatica	Green	5.9
## 3044	Muhlenbergia uniflora	Green	4.8
## 3055	Myosotis scorpioides	Green	5.5
## 3119	Nyssa biflora	Green	4.5
## 3120	Nyssa sylvatica	Green	4.5
## 3130	Oenothera biennis	Green	5.0
## 3131	Oenothera fruticosa	Green	4.5
## 3147	Oligoneuron rigidum var. rigidum	Green	5.0
## 3191	Osmunda cinnamomea	Green	4.5
## 3194	Osmunda claytoniana	Dark Green	4.0
## 3195	Osmunda regalis	Dark Green	4.0
## 3196	Osmunda regalis var. spectabilis	Green	4.3
## 3198	Ostrya virginiana	Green	4.2
## 3207	Oxydendrum arboreum	Green	4.0
## 3212	Pachysandra terminalis	Dark Green	5.5
## 3216	Packera aurea	Green	4.5
## 3217	Packera glabella	Green	4.0
## 3225	Panicum amarum	Green	5.0
## 3230	Panicum dichotomiflorum	Green	4.8
## 3235	Panicum miliaceum	Green	5.8
## 3240	Panicum rigidulum	Green	5.0
## 3246	Panicum virgatum	Green	4.5
## 3278	Parthenocissus quinquefolia	Green	5.0
## 3279	Parthenocissus tricuspidata	Dark Green	5.0
## 3283	Paspalum dilatatum	Green	4.9
## 3285	Paspalum distichum	Green	4.9
## 3287	Paspalum fluitans	Gray-Green	6.0
## 3288	Paspalum laeve	Green	4.5
## 3296	Passiflora lutea	Green	4.5
## 3302	Paulownia tomentosa	Green	4.5
## 3306	Pedicularis canadensis	Gray-Green	4.0
## 3314	Peltandra virginica	Green	5.0
## 3316	Pennisetum glaucum	Green	5.5
## 3320	Penstemon digitalis	Red	5.5
## 3325	Penthorum sedoides	Green	5.0
## 3330	Persea palustris	Green	5.0

## 3344	Phalaris arundinacea	Green	5.5
## 3357	Philadelphus coronarius	Green	5.3
## 3363	Phleum pratense	Green	5.0
## 3368	Phlox divaricata	Green	5.5
## 3373	Phlox glaberrima	Green	5.8
## 3377	Phlox maculata ssp. maculata	Green	5.9
## 3383	Phlox subulata	Green	5.7
## 3393	Photinia pyrifolia	Green	5.5
## 3395	Phragmites australis	Green	4.5
## 3402	Phyla nodiflora	Green	6.0
## 3407	Phyllostachys aurea	Green	5.0
## 3423	Physocarpus opulifolius	Green	4.5
## 3430	Phytolacca americana	Green	4.7
## 3435	Picea abies	Dark Green	5.0
## 3436	Picea glauca	Green	4.0
## 3437	Picea pungens	Green	5.5
## 3438	Picea rubens	Green	4.0
## 3453	Pinus echinata	Green	4.0
## 3454	Pinus pungens	Green	4.5
## 3455	Pinus resinosa	Yellow-Green	4.5
## 3456	Pinus rigida	Yellow-Green	3.5
## 3457	Pinus serotina	Green	4.8
## 3458	Pinus strobus	Dark Green	4.0
## 3459	Pinus sylvestris	Green	5.0
## 3460	Pinus taeda	Green	4.0
## 3461	Pinus virginiana	Green	4.5
## 3471	Pityopsis graminifolia	Green	5.8
## 3478	Plantago major	Green	4.8
## 3503	Platanus occidentalis	Green	4.9
## 3513	Pluchea odorata var. odorata	Green	4.5
## 3517	Poa annua	Green	4.8
## 3518	Poa autumnalis	Green	5.8
## 3519	Poa bulbosa	Green	5.0
## 3521	Poa compressa	Green	5.0
## 3525	Poa palustris	Green	4.9
## 3526	Poa pratensis	Green	5.0
## 3529	Poa sylvestris	Green	5.9
## 3530	Poa trivialis	Green	4.8
## 3575	Polygonum amphibium	Green	4.0
## 3596	Polygonum hydropiper	Green	5.0
## 3597	Polygonum hydropiperoides	Dark Green	4.5
## 3600	Polygonum pensylvanicum	Green	4.0
## 3602	Polygonum persicaria	Green	4.0
## 3603	Polygonum punctatum	Green	6.0
## 3611	Polygonum sagittatum	Green	4.0
## 3625	Polypogon monspeliensis	Green	4.8
## 3634	Pontederia cordata	Green	4.9
## 3636	Populus alba	Green	4.9
## 3637	Populus balsamifera	Yellow-Green	4.5
## 3641	Populus deltoides	Green	4.6
## 3643	Populus grandidentata	Green	4.8
## 3644	Populus heterophylla	Green	4.6
## 3646	Populus nigra	Green	5.0
## 3647	Populus tremuloides	Green	4.3

## 3652	Potamogeton amplifolius	Green	5.5
## 3653	Potamogeton crispus	Red	6.4
## 3654	Potamogeton diversifolius	Green	5.0
## 3655	Potamogeton epihydrus	Green	5.4
## 3658	Potamogeton gramineus	Green	5.5
## 3661	Potamogeton natans	Green	5.8
## 3662	Potamogeton nodosus	Green	5.8
## 3665	Potamogeton praelongus	Green	5.8
## 3671	Potamogeton robbinsii	Green	5.8
## 3673	Potamogeton zosteriformis	Green	5.8
## 3677	Potentilla arguta	Green	6.0
## 3708	Prunella vulgaris	Gray-Green	5.4
## 3713	Prunus americana	Green	5.0
## 3714	Prunus angustifolia	Green	5.0
## 3723	Prunus maritima	Green	5.8
## 3725	Prunus pensylvanica	Green	4.3
## 3729	Prunus serotina	Green	4.0
## 3733	Prunus tomentosa	Green	5.7
## 3734	Prunus virginiana	Green	5.2
## 3748	Ptelea trifoliata	Green	4.8
## 3752	Pteridium aquilinum	Dark Green	4.5
## 3792	Pyrus communis	Green	5.2
## 3796	Quercus alba	Green	4.5
## 3797	Quercus bicolor	Green	4.3
## 3800	Quercus coccinea	Green	4.5
## 3802	Quercus falcata	Green	4.8
## 3806	Quercus imbricaria	Dark Green	4.5
## 3808	Quercus laurifolia	Green	4.2
## 3810	Quercus lyrata	Green	4.5
## 3811	Quercus macrocarpa	Green	4.5
## 3813	Quercus marilandica	Dark Green	4.6
## 3815	Quercus michauxii	Green	4.5
## 3817	Quercus muehlenbergii	Green	5.0
## 3818	Quercus nigra	Green	4.8
## 3819	Quercus pagoda	Green	4.5
## 3820	Quercus palustris	Green	4.5
## 3821	Quercus phellos	Green	4.5
## 3824	Quercus rubra	Green	4.3
## 3829	Quercus shumardii	Green	5.0
## 3832	Quercus stellata	Green	4.8
## 3834	Quercus velutina	Green	4.5
## 3836	Ranunculus abortivus	Green	5.0
## 3848	Ranunculus hispidus	Gray-Green	4.5
## 3851	Ranunculus laxicaulis	Green	6.0
## 3854	Ranunculus pensylvanicus	Green	5.0
## 3859	Ranunculus repens	Green	5.6
## 3861	Ranunculus sceleratus	Green	4.8
## 3872	Rhamnus alnifolia	Green	4.0
## 3887	Rhododendron arborescens	Dark Green	4.2
## 3888	Rhododendron atlanticum	Dark Green	4.2
## 3890	Rhododendron canescens	Green	4.3
## 3891	Rhododendron maximum	Dark Green	4.0
## 3892	Rhododendron periclymenoides	Green	4.3
## 3894	Rhododendron viscosum	Green	4.0

## 3898	Rhus copallinum	Green	5.3
## 3900	Rhus glabra	Green	5.3
## 3901	Rhus trilobata	Green	6.5
## 3912	Rhynchospora corniculata	Yellow-Green	5.1
## 3931	Ribes aureum	Green	6.0
## 3951	Robinia pseudoacacia	Green	4.6
## 3959	Rorippa sessiliflora	Green	5.5
## 3960	Rorippa sinuata	Green	5.0
## 3961	Rorippa sylvestris	Green	5.0
## 3967	Rosa carolina	Green	4.0
## 3971	Rosa palustris	Green	4.0
## 3973	Rosa rugosa	Green	5.5
## 3974	Rosa setigera	Dark Green	5.0
## 3976	Rosa virginiana	Green	5.0
## 3984	Rubus allegheniensis	Green	4.6
## 3987	Rubus alumnus	Green	4.8
## 3989	Rubus argutus	Green	4.5
## 3990	Rubus baileyanus	Green	5.0
## 3994	Rubus cuneifolius	Green	5.0
## 4002	Rubus hispidus	Gray-Green	4.5
## 4003	Rubus idaeus	Green	5.0
## 4006	Rubus laciniatus	Green	5.2
## 4016	Rubus occidentalis	Green	5.2
## 4017	Rubus odoratus	Green	4.5
## 4043	Rudbeckia hirta	Green	6.0
## 4046	Rudbeckia laciniata	Gray-Green	4.5
## 4056	Ruellia humilis	Green	4.5
## 4058	Ruellia strepens	Green	6.0
## 4065	Rumex maritimus	Green	5.0
## 4085	Saccharum brevibarbe	Green	4.0
## 4089	Saccharum giganteum	Green	3.5
## 4090	Saccharum ravennae	Green	4.8
## 4092	Sacciolepis striata	Green	5.0
## 4110	Sagittaria latifolia	Green	4.7
## 4118	Salix alba	Green	4.5
## 4123	Salix caroliniana	Green	4.5
## 4126	Salix discolor	Green	4.0
## 4128	Salix eriocephala	Green	4.0
## 4130	Salix humilis	Dark Green	5.9
## 4133	Salix interior	Green	4.0
## 4134	Salix lucida	Yellow-Green	5.8
## 4136	Salix nigra	Green	4.8
## 4138	Salix pentandra	Dark Green	6.5
## 4141	Salix Xsepulcralis	Green	4.5
## 4142	Salix sericea	Green	5.2
## 4159	Sambucus nigra ssp. canadensis	Green	5.0
## 4161	Sambucus racemosa var. racemosa	Green	5.2
## 4181	Saponaria officinalis	Green	5.0
## 4186	Sassafras albidum	Green	4.5
## 4204	Schizachyrium scoparium	Gray-Green	5.0
## 4216	Schoenoplectus fluviatilis	Green	4.0
## 4219	Schoenoplectus pungens var. pungens	Dark Green	3.7
## 4220	Schoenoplectus robustus	Green	6.4
## 4222	Schoenoplectus tabernaemontani	Green	5.4

## 4228	<i>Scirpus atrovirens</i>	Dark Green	4.0
## 4229	<i>Scirpus cyperinus</i>	Green	4.8
## 4231	<i>Scirpus georgianus</i>	Dark Green	4.5
## 4233	<i>Scirpus pendulus</i>	Green	4.9
## 4274	<i>Secale cereale</i>	Green	4.5
## 4288	<i>Senecio vulgaris</i>	Green	5.0
## 4293	<i>Senna marilandica</i>	Green	4.0
## 4308	<i>Setaria italica</i>	Green	5.3
## 4311	<i>Setaria pumila</i>	Green	5.0
## 4331	<i>Sideroxylon lycioides</i>	Green	4.0
## 4355	<i>Silphium perfoliatum</i>	Green	4.5
## 4373	<i>Sisyrinchium angustifolium</i>	Green	5.0
## 4382	<i>Smilax bona-nox</i>	Green	4.5
## 4385	<i>Smilax glauca</i>	Gray-Green	4.5
## 4387	<i>Smilax laurifolia</i>	Green	4.0
## 4390	<i>Smilax rotundifolia</i>	Green	5.0
## 4392	<i>Smilax walteri</i>	Green	4.0
## 4401	<i>Solanum lycopersicum</i> var. <i>lycopersicum</i>	Green	5.5
## 4416	<i>Solidago caesia</i>	Dark Green	5.5
## 4417	<i>Solidago canadensis</i>	Green	4.8
## 4422	<i>Solidago fistulosa</i>	Dark Green	4.5
## 4423	<i>Solidago flexicaulis</i>	Green	5.3
## 4424	<i>Solidago gigantea</i>	Green	4.0
## 4429	<i>Solidago missouriensis</i>	Green	5.5
## 4431	<i>Solidago nemoralis</i>	Green	6.5
## 4435	<i>Solidago patula</i>	Green	4.5
## 4441	<i>Solidago rugosa</i>	Green	5.0
## 4447	<i>Solidago sempervirens</i>	Dark Green	5.5
## 4458	<i>Solidago uliginosa</i> var. <i>uliginosa</i>	Green	4.5
## 4468	<i>Sorbus americana</i>	Green	5.3
## 4469	<i>Sorbus aucuparia</i>	Green	5.5
## 4472	<i>Sorghastrum nutans</i>	Green	4.8
## 4474	<i>Sorghum bicolor</i>	Green	5.5
## 4475	<i>Sorghum bicolor</i> ssp. <i>bicolor</i>	Green	5.5
## 4476	<i>Sorghum halepense</i>	Green	5.0
## 4478	<i>Sparganium americanum</i>	Green	4.9
## 4481	<i>Sparganium eurycarpum</i>	Green	5.0
## 4483	<i>Spartina alterniflora</i>	Green	5.4
## 4485	<i>Spartina cynosuroides</i>	Green	5.8
## 4486	<i>Spartina patens</i>	Green	5.5
## 4487	<i>Spartina pectinata</i>	Green	6.0
## 4505	<i>Sphenopholis obtusata</i>	Green	5.0
## 4510	<i>Spiraea alba</i>	Green	4.3
## 4513	<i>Spiraea betulifolia</i>	Green	6.0
## 4520	<i>Spiraea tomentosa</i>	Green	4.5
## 4523	<i>Spiranthes cernua</i>	Green	4.5
## 4537	<i>Spirodela polyrrhiza</i>	Green	5.0
## 4541	<i>Sporobolus compositus</i> var. <i>compositus</i>	Green	5.5
## 4542	<i>Sporobolus heterolepis</i>	Green	6.0
## 4549	<i>Sporobolus virginicus</i>	Green	6.0
## 4557	<i>Stachys palustris</i>	Dark Green	5.7
## 4558	<i>Stachys tenuifolia</i>	Green	5.7
## 4566	<i>Stellaria longifolia</i>	Dark Green	4.0
## 4568	<i>Stellaria longipes</i>	Green	4.8

## 4600	<i>Symphoricarpos albus</i>	Green	6.0
## 4603	<i>Symphoricarpos occidentalis</i>	Green	6.6
## 4604	<i>Symphoricarpos orbiculatus</i>	Green	5.5
## 4608	<i>Symphyotrichum cordifolium</i>	Gray-Green	5.7
## 4620	<i>Symphyotrichum laeve</i> var. <i>laeve</i>	Green	5.8
## 4627	<i>Symphyotrichum lateriflorum</i> var. <i>lateriflorum</i>	Green	5.2
## 4632	<i>Symphyotrichum novi-belgii</i> var. <i>novi-belgii</i>	Green	5.5
## 4636	<i>Symphyotrichum patens</i> var. <i>patens</i>	Dark Green	4.9
## 4639	<i>Symphyotrichum pilosum</i> var. <i>pilosum</i>	Green	5.4
## 4643	<i>Symphyotrichum prenanthoides</i>	Green	5.5
## 4645	<i>Symphyotrichum puniceum</i> var. <i>puniceum</i>	Green	4.5
## 4648	<i>Symphyotrichum subulatum</i>	Green	5.6
## 4656	<i>Symplocarpus foetidus</i>	Green	4.0
## 4658	<i>Symplocos tinctoria</i>	Yellow-Green	4.5
## 4661	<i>Syringa vulgaris</i>	Green	5.8
## 4675	<i>Taraxacum officinale</i>	Green	4.8
## 4678	<i>Taxodium distichum</i>	Green	4.5
## 4680	<i>Taxus canadensis</i>	Green	5.3
## 4688	<i>Teucrium canadense</i>	White-Gray	4.5
## 4703	<i>Thelypteris noveboracensis</i>	Yellow-Green	4.0
## 4715	<i>Thuja occidentalis</i>	Green	5.2
## 4725	<i>Tilia americana</i>	Green	4.5
## 4727	<i>Tilia americana</i> var. <i>heterophylla</i>	Green	5.0
## 4728	<i>Tilia cordata</i>	Green	4.8
## 4730	<i>Tillandsia usneoides</i>	White-Gray	6.0
## 4756	<i>Tradescantia virginiana</i>	Green	4.0
## 4758	<i>Tragopogon dubius</i>	Green	6.5
## 4760	<i>Tragopogon porrifolius</i>	Green	5.2
## 4789	<i>Tridens flavus</i>	Green	4.5
## 4799	<i>Trifolium hybridum</i>	Green	5.6
## 4800	<i>Trifolium incarnatum</i>	Green	5.5
## 4802	<i>Trifolium pratense</i>	Green	5.5
## 4804	<i>Trifolium repens</i>	Green	5.2
## 4840	<i>Tripsacum dactyloides</i>	Green	5.1
## 4842	<i>Triticum aestivum</i>	Green	5.5
## 4844	<i>Tsuga canadensis</i>	Dark Green	4.2
## 4850	<i>Typha angustifolia</i>	Green	3.7
## 4853	<i>Typha latifolia</i>	Green	5.5
## 4855	<i>Ulmus alata</i>	Green	5.0
## 4856	<i>Ulmus americana</i>	Green	5.0
## 4857	<i>Ulmus parvifolia</i>	Green	4.8
## 4859	<i>Ulmus pumila</i>	Green	5.5
## 4860	<i>Ulmus rubra</i>	Green	5.0
## 4861	<i>Ulmus thomasii</i>	Green	4.5
## 4863	<i>Uniola paniculata</i>	Green	6.0
## 4866	<i>Urochloa mutica</i>	Green	5.3
## 4869	<i>Urochloa platyphylla</i>	Green	5.0
## 4870	<i>Urochloa ramosa</i>	Green	5.5
## 4902	<i>Vaccinium angustifolium</i>	Green	4.7
## 4904	<i>Vaccinium corymbosum</i>	Green	4.7
## 4912	<i>Vaccinium stamineum</i>	Green	4.0
## 4949	<i>Verbesina encelioides</i>	Green	6.4
## 4958	<i>Vernonia noveboracensis</i>	Dark Green	4.5
## 4961	<i>Veronica americana</i>	Green	5.7

## 4984	Viburnum acerifolium	Green	4.8
## 4986	Viburnum dentatum var. dentatum	Yellow-Green	4.5
## 4989	Viburnum lantana	Green	5.5
## 4990	Viburnum lantanoides	Green	4.9
## 4991	Viburnum lentago	Green	5.0
## 4994	Viburnum nudum var. cassinoides	Green	4.9
## 4996	Viburnum opulus	Green	5.2
## 4998	Viburnum prunifolium	Green	4.8
## 4999	Viburnum rafinesqueanum	Green	4.5
## 5003	Vicia americana	Green	5.9
## 5006	Vicia cracca	Green	4.9
## 5009	Vicia grandiflora	Dark Green	6.0
## 5016	Vicia villosa	Green	6.0
## 5021	Vigna unguiculata	Green	6.0
## 5024	Vinca minor	Dark Green	5.5
## 5048	Viola macloskeyi	Green	6.0
## 5056	Viola pubescens	Dark Green	6.0
## 5066	Viola sororia	Green	6.0
## 5079	Vitis aestivalis	Green	5.3
## 5082	Vitis cinerea	Dark Green	5.4
## 5086	Vitis riparia	Green	6.1
## 5087	Vitis rotundifolia	Green	6.0
## 5090	Vitis vulpina	Green	6.0
## 5104	Wisteria frutescens	Green	4.0
## 5145	Zea mays	Dark Green	5.5
## 5153	Zizania aquatica	Green	6.4
## 5158	Zizaniopsis miliacea	Green	4.3
##	pH_Max	PH_Mean	
## 4	6.0	5.00	
## 9	8.5	7.75	
## 14	7.0	6.45	
## 17	7.8	6.40	
## 19	7.3	5.90	
## 20	6.5	5.45	
## 21	7.2	6.00	
## 22	7.0	6.40	
## 23	7.3	6.00	
## 26	7.3	5.65	
## 27	7.9	5.80	
## 29	7.0	5.90	
## 31	8.0	7.00	
## 32	8.0	7.00	
## 43	7.2	6.20	
## 51	8.0	7.00	
## 52	6.6	5.60	
## 63	7.0	6.00	
## 90	7.0	5.75	
## 92	8.0	7.00	
## 94	7.0	5.75	
## 95	7.5	6.50	
## 99	7.5	6.25	
## 100	7.5	6.20	
## 102	8.0	6.25	
## 103	7.5	6.25	

## 104	7.5	6.50
## 105	8.0	7.00
## 106	7.5	6.30
## 108	7.9	6.00
## 117	7.5	6.50
## 121	7.3	6.05
## 128	7.0	6.00
## 146	7.0	6.00
## 147	7.7	6.25
## 148	7.0	6.00
## 149	7.0	6.00
## 151	8.0	6.75
## 153	7.5	5.75
## 154	7.5	5.75
## 156	7.5	5.75
## 157	8.0	6.90
## 187	7.5	6.15
## 189	7.5	6.50
## 192	7.0	5.90
## 194	7.0	6.00
## 195	7.2	5.85
## 201	5.9	4.95
## 204	8.5	7.25
## 205	7.8	6.80
## 207	8.5	6.75
## 209	8.0	6.00
## 211	7.4	6.30
## 226	7.5	6.75
## 231	7.5	6.75
## 233	6.3	5.65
## 238	7.5	5.75
## 240	7.0	5.95
## 258	7.5	6.50
## 279	7.5	6.75
## 286	7.0	5.75
## 307	7.2	6.10
## 310	6.6	5.70
## 316	8.0	6.75
## 326	8.0	7.50
## 329	7.0	5.90
## 359	7.0	6.00
## 368	9.0	7.50
## 381	6.9	5.95
## 384	7.0	5.90
## 390	8.0	6.50
## 400	6.8	5.80
## 406	7.2	5.95
## 438	8.0	7.00
## 444	7.0	5.75
## 466	7.5	6.75
## 467	8.5	6.90
## 473	7.8	6.65
## 479	7.8	6.60
## 488	7.0	6.40

## 504	7.2	6.35
## 511	8.0	6.00
## 514	6.8	5.20
## 515	6.5	4.75
## 516	7.4	5.80
## 518	6.5	5.00
## 522	7.0	6.00
## 526	7.0	6.05
## 527	7.1	6.15
## 528	7.1	6.15
## 529	7.1	6.10
## 530	7.2	6.20
## 531	7.0	6.00
## 532	8.6	6.80
## 535	7.2	6.10
## 546	7.0	6.05
## 552	7.0	6.15
## 557	7.5	6.80
## 559	7.5	6.25
## 564	6.0	5.20
## 570	6.9	6.25
## 575	8.5	7.00
## 577	7.2	6.60
## 586	7.2	6.60
## 587	7.2	6.60
## 590	8.0	6.50
## 599	7.5	6.35
## 600	7.2	6.25
## 601	8.0	6.75
## 602	7.5	6.50
## 607	8.0	6.75
## 608	8.0	6.75
## 611	7.0	6.35
## 617	8.2	7.10
## 639	9.2	7.45
## 642	8.3	6.65
## 650	8.0	6.25
## 652	7.0	5.50
## 664	7.0	5.90
## 671	6.8	6.00
## 678	6.8	5.85
## 694	6.5	5.35
## 700	7.5	6.75
## 705	7.5	6.50
## 707	6.8	5.85
## 718	8.5	6.75
## 721	6.8	5.90
## 724	7.7	6.85
## 730	6.8	5.80
## 741	6.8	5.80
## 750	7.8	6.05
## 752	7.0	6.45
## 755	7.5	5.75
## 760	6.0	5.25

## 764	7.0	5.90
## 766	7.0	5.70
## 773	7.5	6.65
## 775	7.2	6.15
## 782	7.0	5.90
## 786	7.5	6.05
## 791	7.5	5.75
## 794	6.8	5.85
## 796	6.6	5.60
## 801	6.6	5.55
## 802	7.2	6.10
## 812	7.2	6.40
## 820	7.1	5.85
## 822	7.2	6.55
## 824	8.0	6.00
## 827	6.9	5.80
## 828	7.2	6.60
## 832	7.2	6.45
## 841	7.9	6.75
## 843	7.2	6.30
## 844	6.9	5.85
## 846	7.3	6.00
## 849	6.8	6.20
## 859	6.9	5.85
## 862	6.8	5.90
## 869	7.0	6.60
## 870	6.8	5.85
## 875	7.0	5.95
## 881	6.7	5.70
## 892	6.8	5.80
## 893	6.8	5.80
## 894	7.0	5.90
## 902	6.8	5.75
## 903	6.9	5.75
## 906	6.9	5.80
## 909	6.8	5.90
## 911	7.3	6.45
## 912	7.9	6.40
## 915	6.9	5.80
## 920	7.0	5.25
## 923	7.0	5.95
## 929	7.0	6.00
## 930	7.0	5.90
## 933	7.0	6.35
## 934	6.8	5.65
## 937	7.0	6.35
## 939	7.7	6.70
## 943	7.5	6.00
## 946	7.5	6.00
## 947	8.9	7.85
## 952	7.4	5.70
## 958	7.4	6.10
## 959	7.3	6.05
## 960	7.5	6.00

## 961	6.6	5.80
## 963	7.3	5.65
## 967	6.5	6.00
## 972	6.8	5.85
## 974	7.5	6.50
## 976	7.0	6.25
## 978	7.0	5.75
## 980	6.5	5.40
## 982	7.5	6.25
## 983	7.5	6.25
## 987	7.7	6.05
## 989	7.8	6.90
## 1017	8.6	6.65
## 1031	8.6	7.30
## 1034	7.9	6.45
## 1037	8.0	6.25
## 1049	7.5	6.50
## 1056	6.3	4.90
## 1058	6.0	5.50
## 1075	7.0	6.00
## 1076	7.0	5.75
## 1104	8.5	7.25
## 1112	7.4	6.40
## 1115	6.5	5.50
## 1133	7.5	6.75
## 1139	8.5	6.25
## 1140	7.0	5.85
## 1142	6.6	5.80
## 1178	6.8	5.90
## 1187	7.0	5.75
## 1191	6.8	5.90
## 1198	7.0	6.00
## 1212	7.2	6.20
## 1216	6.7	5.70
## 1218	7.0	5.50
## 1222	7.5	6.50
## 1231	7.5	6.50
## 1235	7.2	6.00
## 1250	7.0	6.50
## 1252	7.8	6.50
## 1259	7.3	6.05
## 1260	7.0	6.00
## 1261	6.9	6.20
## 1262	7.7	6.25
## 1263	7.2	6.50
## 1265	7.4	6.10
## 1266	7.8	7.10
## 1268	7.5	6.15
## 1275	6.8	5.80
## 1278	7.0	6.00
## 1279	7.5	6.15
## 1292	7.2	5.85
## 1304	7.0	5.65
## 1309	7.3	5.80

## 1360	6.5	5.75
## 1371	8.0	6.50
## 1380	6.8	5.85
## 1381	6.5	5.50
## 1382	6.5	5.75
## 1388	6.5	5.75
## 1389	7.0	6.00
## 1393	7.0	6.00
## 1400	7.0	6.00
## 1404	8.3	6.65
## 1406	6.5	5.50
## 1408	6.8	5.70
## 1415	7.0	6.70
## 1429	7.0	6.25
## 1432	7.5	6.25
## 1446	7.0	5.90
## 1459	8.6	6.75
## 1469	6.8	5.80
## 1476	8.0	6.50
## 1495	7.0	6.50
## 1498	7.0	6.30
## 1520	6.5	5.25
## 1527	7.5	5.75
## 1528	6.5	5.25
## 1534	6.5	5.25
## 1543	6.5	5.25
## 1550	7.0	5.50
## 1551	7.5	6.00
## 1563	7.0	5.90
## 1567	7.0	6.25
## 1590	7.5	6.10
## 1602	10.0	8.20
## 1604	7.5	6.00
## 1629	6.5	5.00
## 1642	7.5	6.10
## 1652	7.2	6.85
## 1653	7.2	6.85
## 1655	8.5	6.25
## 1659	7.4	6.05
## 1663	9.4	6.60
## 1674	7.9	6.55
## 1678	9.5	7.75
## 1679	7.9	6.45
## 1681	7.5	6.25
## 1703	8.7	6.40
## 1707	8.0	6.00
## 1713	7.0	6.60
## 1721	7.2	6.10
## 1729	7.8	6.30
## 1732	7.9	6.45
## 1738	7.8	6.50
## 1739	7.2	5.85
## 1742	9.0	7.30
## 1744	7.0	6.00

## 1756	7.5	6.00
## 1758	6.5	5.25
## 1763	7.0	5.50
## 1765	6.0	5.25
## 1769	6.5	5.25
## 1774	8.5	6.50
## 1778	8.5	6.50
## 1787	7.5	5.75
## 1797	7.8	6.30
## 1802	7.2	6.00
## 1807	7.6	5.80
## 1816	6.5	5.25
## 1818	6.5	5.15
## 1835	8.5	7.25
## 1903	6.9	5.90
## 1923	7.2	5.65
## 1931	7.5	6.25
## 1933	7.2	6.35
## 1959	7.5	6.25
## 1970	7.5	6.10
## 1971	8.2	6.30
## 1972	8.1	6.40
## 1973	7.3	5.90
## 2000	7.2	6.30
## 2001	7.0	6.00
## 2002	7.2	6.10
## 2011	7.0	5.80
## 2019	7.0	5.80
## 2021	8.0	6.30
## 2030	6.5	5.25
## 2031	6.5	5.25
## 2036	6.5	5.50
## 2038	6.5	5.40
## 2039	5.5	4.65
## 2044	7.2	6.50
## 2048	7.2	6.50
## 2074	7.5	6.00
## 2076	7.0	6.00
## 2079	7.0	5.90
## 2080	7.0	5.90
## 2091	8.8	7.65
## 2097	8.0	6.40
## 2102	8.5	6.75
## 2107	8.0	6.25
## 2108	7.0	5.50
## 2110	8.0	6.00
## 2112	7.8	6.65
## 2159	6.2	5.35
## 2166	7.8	6.50
## 2170	7.5	5.75
## 2172	7.5	6.00
## 2178	7.0	5.50
## 2179	7.8	6.65
## 2180	7.2	6.20

##	2185	7.3	6.55
##	2200	7.0	5.50
##	2205	8.5	7.50
##	2223	7.3	6.35
##	2232	7.0	6.00
##	2254	7.2	6.35
##	2255	7.5	5.75
##	2275	7.0	5.50
##	2282	8.5	7.25
##	2289	8.0	7.10
##	2290	8.5	6.75
##	2305	6.9	6.20
##	2333	8.3	7.00
##	2349	7.1	6.40
##	2351	7.0	5.80
##	2352	7.5	5.75
##	2353	6.4	5.60
##	2357	7.0	5.80
##	2362	7.2	5.90
##	2364	7.2	5.90
##	2365	7.0	5.80
##	2370	7.3	6.25
##	2372	6.5	5.00
##	2373	7.0	5.75
##	2377	7.0	5.75
##	2379	7.5	6.00
##	2381	7.4	6.90
##	2382	7.4	7.10
##	2410	7.3	6.05
##	2426	7.5	5.75
##	2428	5.7	5.35
##	2439	7.0	6.50
##	2440	8.2	6.40
##	2442	7.2	5.80
##	2446	7.5	6.15
##	2447	7.0	5.75
##	2448	6.7	5.60
##	2449	7.1	6.50
##	2451	7.6	6.10
##	2454	5.9	5.20
##	2458	6.5	5.50
##	2461	8.8	7.15
##	2471	6.8	6.15
##	2472	6.8	5.65
##	2476	7.0	6.25
##	2477	7.0	5.50
##	2478	6.8	6.20
##	2479	6.8	5.85
##	2480	6.0	5.25
##	2482	7.0	5.75
##	2483	6.5	5.50
##	2485	6.8	5.90
##	2488	8.0	6.75
##	2490	8.0	6.35

##	2493	7.6	6.50
##	2498	5.5	5.00
##	2506	8.0	7.00
##	2508	8.0	6.25
##	2517	7.5	6.50
##	2518	7.3	6.10
##	2524	7.8	6.15
##	2526	7.4	5.70
##	2539	7.5	6.25
##	2554	7.0	6.50
##	2555	6.5	6.00
##	2558	6.2	6.00
##	2578	8.0	6.50
##	2579	8.8	6.95
##	2580	8.5	6.50
##	2610	8.0	7.00
##	2612	7.5	5.75
##	2617	8.2	6.95
##	2620	6.9	6.35
##	2631	7.0	6.10
##	2641	7.5	6.55
##	2652	7.5	6.65
##	2653	6.9	6.20
##	2656	7.7	6.80
##	2659	7.5	6.25
##	2671	5.9	5.45
##	2673	8.5	7.25
##	2681	6.0	5.25
##	2697	8.0	6.50
##	2708	7.0	5.75
##	2710	6.5	5.50
##	2712	8.0	6.50
##	2726	7.8	6.80
##	2744	8.0	6.50
##	2745	7.9	6.45
##	2754	7.8	6.35
##	2755	8.0	6.75
##	2757	8.5	7.25
##	2759	7.5	6.35
##	2762	8.0	6.50
##	2768	6.0	5.00
##	2774	8.5	6.75
##	2812	5.3	4.65
##	2820	7.8	6.50
##	2823	7.2	6.20
##	2827	6.3	5.65
##	2838	7.0	6.00
##	2845	7.2	6.00
##	2855	7.5	6.00
##	2859	7.0	6.10
##	2860	6.5	5.50
##	2862	7.5	6.25
##	2863	6.9	5.95
##	2906	9.0	7.90

##	2916	8.0	6.75
##	2920	8.5	7.25
##	2923	7.5	6.70
##	2935	8.2	7.35
##	2949	7.0	6.00
##	2956	6.5	5.65
##	2962	8.0	6.25
##	2970	8.7	7.20
##	2978	7.8	7.00
##	2990	7.5	6.05
##	3008	8.0	7.00
##	3024	7.0	5.75
##	3025	9.1	7.25
##	3026	7.8	6.65
##	3028	7.0	6.00
##	3029	7.0	6.00
##	3032	8.4	7.20
##	3034	6.8	6.30
##	3035	7.9	6.90
##	3037	7.5	6.40
##	3038	7.5	6.50
##	3039	7.5	6.00
##	3041	7.5	6.70
##	3044	6.8	5.80
##	3055	7.5	6.50
##	3119	5.7	5.10
##	3120	6.0	5.25
##	3130	7.0	6.00
##	3131	7.0	5.75
##	3147	7.5	6.25
##	3191	7.0	5.75
##	3194	6.0	5.00
##	3195	6.0	5.00
##	3196	5.2	4.75
##	3198	7.6	5.90
##	3207	6.5	5.25
##	3212	7.5	6.50
##	3216	8.5	6.50
##	3217	7.5	5.75
##	3225	7.5	6.25
##	3230	7.0	5.90
##	3235	6.8	6.30
##	3240	7.5	6.25
##	3246	8.0	6.25
##	3278	7.5	6.25
##	3279	6.5	5.75
##	3283	6.5	5.70
##	3285	8.9	6.90
##	3287	8.6	7.30
##	3288	7.5	6.00
##	3296	8.0	6.25
##	3302	7.5	6.00
##	3306	7.0	5.50
##	3314	8.8	6.90

## 3316	6.8	6.15
## 3320	7.0	6.25
## 3325	7.0	6.00
## 3330	7.0	6.00
## 3344	8.0	6.75
## 3357	7.5	6.40
## 3363	7.8	6.40
## 3368	7.2	6.35
## 3373	7.0	6.40
## 3377	6.8	6.35
## 3383	7.5	6.60
## 3393	7.5	6.50
## 3395	8.7	6.60
## 3402	8.5	7.25
## 3407	7.5	6.25
## 3423	6.5	5.50
## 3430	8.0	6.35
## 3435	7.0	6.00
## 3436	8.2	6.10
## 3437	7.8	6.65
## 3438	5.8	4.90
## 3453	6.0	5.00
## 3454	7.0	5.75
## 3455	6.0	5.25
## 3456	5.1	4.30
## 3457	6.8	5.80
## 3458	6.5	5.25
## 3459	7.5	6.25
## 3460	7.0	5.50
## 3461	7.5	6.00
## 3471	7.0	6.40
## 3478	7.3	6.05
## 3503	6.5	5.70
## 3513	7.0	5.75
## 3517	8.0	6.40
## 3518	6.9	6.35
## 3519	7.2	6.10
## 3521	7.0	6.00
## 3525	7.5	6.20
## 3526	8.4	6.70
## 3529	7.0	6.45
## 3530	7.5	6.15
## 3575	7.0	5.50
## 3596	7.5	6.25
## 3597	8.8	6.65
## 3600	8.5	6.25
## 3602	8.5	6.25
## 3603	8.7	7.35
## 3611	8.5	6.25
## 3625	7.8	6.30
## 3634	8.7	6.80
## 3636	7.0	5.95
## 3637	7.0	5.75
## 3641	6.5	5.55

## 3643	7.2	6.00
## 3644	5.9	5.25
## 3646	8.5	6.75
## 3647	9.0	6.65
## 3652	7.0	6.25
## 3653	8.5	7.45
## 3654	7.7	6.35
## 3655	7.0	6.20
## 3658	7.0	6.25
## 3661	7.0	6.40
## 3662	7.0	6.40
## 3665	7.0	6.40
## 3671	7.0	6.40
## 3673	7.0	6.40
## 3677	8.0	7.00
## 3708	8.0	6.70
## 3713	7.0	6.00
## 3714	7.5	6.25
## 3723	7.7	6.75
## 3725	7.3	5.80
## 3729	7.5	5.75
## 3733	7.2	6.45
## 3734	8.4	6.80
## 3748	7.0	5.90
## 3752	7.0	5.75
## 3792	6.7	5.95
## 3796	6.8	5.65
## 3797	6.5	5.40
## 3800	6.9	5.70
## 3802	7.0	5.90
## 3806	6.0	5.25
## 3808	6.5	5.35
## 3810	7.5	6.00
## 3811	7.5	6.00
## 3813	5.6	5.10
## 3815	6.5	5.50
## 3817	8.0	6.50
## 3818	7.3	6.05
## 3819	6.0	5.25
## 3820	6.5	5.50
## 3821	6.5	5.50
## 3824	7.3	5.80
## 3829	7.6	6.30
## 3832	6.5	5.65
## 3834	6.5	5.50
## 3836	7.5	6.25
## 3848	8.0	6.25
## 3851	7.5	6.75
## 3854	7.5	6.25
## 3859	7.2	6.40
## 3861	8.4	6.60
## 3872	8.0	6.00
## 3887	5.7	4.95
## 3888	5.7	4.95

## 3890	5.8	5.05
## 3891	5.5	4.75
## 3892	5.5	4.90
## 3894	7.0	5.50
## 3898	7.5	6.40
## 3900	7.5	6.40
## 3901	8.2	7.35
## 3912	7.4	6.25
## 3931	8.0	7.00
## 3951	8.2	6.40
## 3959	7.5	6.50
## 3960	8.5	6.75
## 3961	8.0	6.50
## 3967	7.0	5.50
## 3971	7.0	5.50
## 3973	7.5	6.50
## 3974	7.5	6.25
## 3976	7.0	6.00
## 3984	7.5	6.05
## 3987	7.0	5.90
## 3989	7.0	5.75
## 3990	7.0	6.00
## 3994	7.0	6.00
## 4002	7.0	5.75
## 4003	7.5	6.25
## 4006	7.7	6.45
## 4016	7.5	6.35
## 4017	6.5	5.50
## 4043	7.0	6.50
## 4046	7.0	5.75
## 4056	7.5	6.00
## 4058	8.5	7.25
## 4065	8.2	6.60
## 4085	7.5	5.75
## 4089	7.0	5.25
## 4090	7.0	5.90
## 4092	7.3	6.15
## 4110	8.9	6.80
## 4118	7.8	6.15
## 4123	8.8	6.65
## 4126	7.0	5.50
## 4128	7.0	5.50
## 4130	7.0	6.45
## 4133	7.8	5.90
## 4134	7.2	6.50
## 4136	8.0	6.40
## 4138	7.5	7.00
## 4141	7.5	6.00
## 4142	7.0	6.10
## 4159	8.9	6.95
## 4161	7.2	6.20
## 4181	7.0	6.00
## 4186	7.3	5.90
## 4204	8.4	6.70

## 4216	7.5	5.75
## 4219	7.5	5.60
## 4220	8.4	7.40
## 4222	7.5	6.45
## 4228	8.0	6.00
## 4229	7.2	6.00
## 4231	7.0	5.75
## 4233	7.0	5.95
## 4274	8.2	6.35
## 4288	8.5	6.75
## 4293	7.0	5.50
## 4308	6.9	6.10
## 4311	7.0	6.00
## 4331	7.0	5.50
## 4355	7.5	6.00
## 4373	7.0	6.00
## 4382	8.5	6.50
## 4385	7.5	6.00
## 4387	7.0	5.50
## 4390	7.5	6.25
## 4392	7.0	5.50
## 4401	7.0	6.25
## 4416	7.0	6.25
## 4417	7.5	6.15
## 4422	7.0	5.75
## 4423	7.0	6.15
## 4424	8.0	6.00
## 4429	7.5	6.50
## 4431	7.5	7.00
## 4435	7.0	5.75
## 4441	7.5	6.25
## 4447	7.5	6.50
## 4458	5.7	5.10
## 4468	6.8	6.05
## 4469	7.5	6.50
## 4472	8.0	6.40
## 4474	7.5	6.50
## 4475	7.5	6.50
## 4476	7.0	6.00
## 4478	7.3	6.10
## 4481	8.5	6.75
## 4483	7.0	6.20
## 4485	7.5	6.65
## 4486	7.5	6.50
## 4487	8.5	7.25
## 4505	7.5	6.25
## 4510	6.8	5.55
## 4513	7.5	6.75
## 4520	7.0	5.75
## 4523	6.5	5.50
## 4537	8.6	6.80
## 4541	7.0	6.25
## 4542	7.2	6.60
## 4549	8.0	7.00

## 4557	8.0	6.85
## 4558	7.4	6.55
## 4566	6.5	5.25
## 4568	8.5	6.65
## 4600	7.8	6.90
## 4603	8.0	7.30
## 4604	7.5	6.50
## 4608	7.5	6.60
## 4620	7.8	6.80
## 4627	7.2	6.20
## 4632	7.0	6.25
## 4636	6.9	5.90
## 4639	7.0	6.20
## 4643	7.2	6.35
## 4645	7.5	6.00
## 4648	7.0	6.30
## 4656	7.0	5.50
## 4658	6.5	5.50
## 4661	7.8	6.80
## 4675	7.5	6.15
## 4678	6.0	5.25
## 4680	7.5	6.40
## 4688	8.0	6.25
## 4703	7.0	5.50
## 4715	7.0	6.10
## 4725	7.5	6.00
## 4727	6.6	5.80
## 4728	7.2	6.00
## 4730	6.9	6.45
## 4756	8.0	6.00
## 4758	7.5	7.00
## 4760	7.8	6.50
## 4789	6.5	5.50
## 4799	7.5	6.55
## 4800	7.5	6.50
## 4802	7.6	6.55
## 4804	8.0	6.60
## 4840	7.5	6.30
## 4842	8.0	6.75
## 4844	5.7	4.95
## 4850	8.5	6.10
## 4853	8.7	7.10
## 4855	7.0	6.00
## 4856	8.0	6.50
## 4857	7.0	5.90
## 4859	8.0	6.75
## 4860	7.5	6.25
## 4861	7.2	5.85
## 4863	7.5	6.75
## 4866	8.7	7.00
## 4869	7.0	6.00
## 4870	6.9	6.20
## 4902	7.5	6.10
## 4904	7.5	6.10

```
## 4912    7.0    5.50
## 4949    8.5    7.45
## 4958    8.0    6.25
## 4961    7.5    6.60
## 4984    7.5    6.15
## 4986    7.3    5.90
## 4989    7.5    6.50
## 4990    7.0    5.95
## 4991    7.0    6.00
## 4994    7.0    5.95
## 4996    7.0    6.10
## 4998    7.5    6.15
## 4999    7.1    5.80
## 5003    7.2    6.55
## 5006    7.0    5.95
## 5009    6.9    6.45
## 5016    7.5    6.75
## 5021    8.0    7.00
## 5024    7.7    6.60
## 5048    7.3    6.65
## 5056    7.0    6.50
## 5066    7.8    6.90
## 5079    7.0    6.15
## 5082    7.0    6.20
## 5086    8.5    7.30
## 5087    8.0    7.00
## 5090    7.5    6.75
## 5104    7.0    5.50
## 5145    7.5    6.50
## 5153    7.4    6.90
## 5158    9.0    6.65
```

```
aggregate(plants$PH_Mean,by=list(plants$Foliage_Color),FUN=mean)
```

```
##      Group.1      x
## 1  Dark Green 5.999390
## 2  Gray-Green 6.370833
## 3      Green 6.175111
## 4      Red 6.400000
## 5  White-Gray 6.444444
## 6 Yellow-Green 5.937500
```

```
aggregate(plants$PH_Mean,by=list(plants$Foliage_Color),FUN=sd)
```

```
##      Group.1      x
## 1  Dark Green 0.5560272
## 2  Gray-Green 0.6387686
## 3      Green 0.5250715
## 4      Red 0.9836158
## 5  White-Gray 0.7380059
## 6 Yellow-Green 0.6043428
```

```
plants.anova<-aov(plants$PH_Mean~plants$Foliage_Color,data=plants)
F<-summary(plants.anova)
F
```

```
##              Df Sum Sq Mean Sq F value    Pr(>F)
## plants$Foliage_Color    5    5.23   1.0452    3.613 0.00308 **
## Residuals              807 233.48   0.2893
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

we can find $p < 0.05$, then we can conclude that PH_Mean is influenced by Foliage_color.