

### Glacier Lily



Forb



Linear



Common



Alpine



Max. Germ: 12 days

**Max. 2**

Endos



### Prickly Phlox



Forb



Elliptic



Common



Arid



Max. Germ: 11 days

**Max. 2**

Endos



### Western Blue Flax



Forb



Linear



Common



Forest



Max. Germ: 11 days

**Max. 2**

Endos



### Wild Mint



Forb



Elliptic



Common



Riparian



Max. Germ: 13 days

**Max. 2**

Endos



### Arctic Bluegrass



Grass



Linear



Fruit



Alpine



Max. Germ: 12 days

**Max. 4**

Endos



### Idaho Fescue Grass



Grass



Linear



Fruit



Forest



Max. Germ: 13 days

**Max. 4**

Endos



### June Grass



Grass



Linear



Fruit



Arid



Max. Germ: 14 days

**Max. 4**

Endos



### Wildrye Grass



Grass



Linear



Fruit



Riparian



Max. Germ: 13 days

**Max. 4**

Endos



### Western Peony



Shrub



**Max. 5**  
Endos

Elliptic



Common



Forest



Max. Germ: 16 days

### Golden Currant



Shrub



**Max. 5**  
Endos

Elliptic



Fruit



Arid



Max. Germ: 17 days

### Huckleberry



Shrub



**Max. 5**  
Endos

Elliptic



Fruit



Alpine



Max. Germ: 17 days

### Ocean Spray



Shrub



**Max. 5**  
Endos

Elliptic



Common



Riparian



Max. Germ: 15 days

### Garry Oak



Hardwood



**Max. 7**  
Endos

Elliptic



Common



Forest



Max. Germ: 19 days

### River Birch



Hardwood



**Max. 7**  
Endos

Elliptic



Common



Riparian



Max. Germ: 19 days

### Mountain Alder



Hardwood



**Max. 7**  
Endos

Elliptic



Common



Alpine



Max. Germ: 20 days

### Fireberry Hawthorn



Hardwood



**Max. 7**  
Endos

Elliptic



Fruit



Arid




Max. Germ: 19 days

### Engelmann Spruce





Evergreen 

Needle 

Cone 

Alpine 

Max. Germ: 20 days

**Max. 8**  
Endos  

### Western Juniper





Evergreen 

Needle 

Cone 

Arid 

Max. Germ: 18 days

**Max. 8**  
Endos  

### Canoe Cedar




Evergreen 

Needle 

Cone 

Riparian 

Max. Germ: 19 days

**Max. 8**  
Endos  


### Western Yew





Evergreen 

Needle 

Fruit 


Forest 

Max. Germ: 19 days


**Max. 8**  
Endos  

### Common Coccus



Veiny 

Yellow 

Global 


Germ Impact: -1 days



No  
Enemies

### Common Coccus



Irregular 

White 

Global 


Germ Impact: -2 days




No  
Enemies

### Common Coccus



Circular 

Green 

Global 

Germ Impact: Roll Die


Odd: -3 days; Even: -1 days




No  
Enemies

### Common Coccus



Circular 

Brown 


Global 




Germ Impact: -1 day



No  
Enemies


Common Coccus






Irregular   
Red   
Global   
Germ Impact: -1 day

No Enemies


Common Cap






Stringy   
Green   
Global   
Germ Impact: -1 day

No Enemies


Common Cap






Stringy   
Red   
Global   
Germ Impact: Roll Die  
Odd: -2 days; Even: -0 days

No Enemies


Common Cap






Stringy   
Yellow   
Global   
Germ Impact: -1 day

No Enemies


Common Cap






Stringy   
White   
Global   
Germ Impact: -1 day

No Enemies


Common Cap






Stringy   
Brown   
Global   
Germ Impact: -2 days

No Enemies


Simple Shigella






Circular   
Pink   
Global   
Germ Impact: -2 days

No Enemies

Green Mold



Stringy   
Green   
Global   
Germ Impact: -2 days

No Enemies

### Forest Firmicutes



Irregular



Green



Forest



Germ Impact: -3 days to forest seeds



Brown



Fungi



### Timber Treponema



Stringy



Pink



Forest



Germ Impact: -3 days to forest seeds



Green



Bact



### Beach Yeast



Stringy



Blue



Riparian



Germ Impact: -3 days to riparian seeds



Red



Bact



### Beach Bacillus



Irregular



Yellow



Riparian



Germ Impact: -3 days to riparian seeds



White



Fungi



### Sky Salmonella



Veiny



Blue



Alpine



Germ Impact: -3 days to alpine seeds



White



Bact



### Mountain Morel



Stringy



White



Alpine



Germ Impact: -3 days to alpine seeds



Blue



Bact



### Scorched Stinkhorn



Stringy



Brown



Arid



Germ Impact: -3 days to arid seeds



Blue



Fungi



### Arid Aureus



Veiny



Brown



Arid



Germ Impact: -3 days to arid seeds



Yellow



Fungi





### Leafy Listeria



Circular



Red



Elliptic



Brown



Bact



Germ Impact: -3 days to  
simple leaf seeds

### Fruity Fungus



Stringy



Blue



Fruit



Red



Fungi



Germ Impact: -3 days to  
fruit bearing seeds

### Grassy Gemella



Veiny



White



Linear



Pink



Fungi



Germ Impact: -3 days to  
grassy leaf seeds

### Needle Nylum



Stringy



Yellow



Needle



Green



Fungi



Germ Impact: -4 days to  
needle leaf seeds

### Cone Cladosporium



Stringy



Pink



Cone



Yellow



Bact



Germ Impact: -4 days to  
cone bearing seeds

### Flowering Firmicutes



Veiny



Blue



Common



Pink



Bact



Germ Impact: -3 days to  
common flower seeds

### Forb Fungus



Stringy



Green



Forb



Forest  
Endos



Germ Impact: -3 days to  
forbs, +2 days to others

### Grassy Ganoderma



Stringy



Red



Grass



Arid  
Endos



Germ Impact: -4 days to  
grasses, +2 to others

### Shrub Spirillum



Veiny

Pink

Shrub



Germ Impact: -5 days to shrubs, +3 to others

### Pine Penny Bun



Stringy

Brown

Evergreen



Germ Impact: -6 days to evergreens, +3 to others

### Angiosperm Archaea



Irregular

White

Hardwood



Germ Impact: -6 days to hardwoods, +3 to others

### Volcanic Vibrio



Irregular

Red

Global



Germ Impact: Roll Die  
Odd: -4 days; Even: +2 days

### Silly Shiitake



Stringy

White

Global



Germ Impact: Roll Die  
Odd: -4 days; Even: +3 days

### Pathogen



Virus

Germ Impact:

Roll Die

Add # rolled

Duration: 1 round

### Pathogen



Nematode

Roll Die Once

Odd: Eats all bacteria

Even: Eats all fungi

(Effect lasts full duration)

Duration: 3 rounds

### Pathogen



Mistletoe

Germ Impact:

All endophytes +1 day to each

Duration: 2 rounds

## Pathogen



### Smut

#### Germ Impact:

+2 days to grasses

(+1 to Others)

Duration: 2 rounds

## Climate Change

Droughts will increase, making life tough for seeds.

If you have at least 2 bacterial endophytes, then proceed. If none, then discard card and draw again.

**Bacteria help**, but help the most in drier habitats.

Germ Impact: Roll Die

Odd: -3 days Forest & Arid

Even: -1 Alpine & Riparian

## Climate Change

Quick freezes events will increase, making life tough for seeds.

If you have at least 2 fungal endophytes, then proceed. If none, then discard card and draw again.

**Fungi help**, but help woody species more.

Germ Impact: Roll Die

Odd: -3 days woody species

Even: -1 herbaceous species

## Climate Change

Wildfires will increase, making life tough for seeds in ash soils.

If you have at least 2 fungal endophytes, then proceed. If none, then discard card and draw again.

**Fungi help** seeds in ash soils by helping roots to grow longer to find water and nutrients.

Germ Impact: -3 days

#### Rules:

1. The goal is to germinate your seed first before the other players.
2. Discard any cards that fit the description of the enemy (New cards have precedence).
3. Follow instructions on bottom of cards at end of round.
4. Endophytes are stacked, such that you tally them each round. They stay with seed.
5. Seeds have a max number of endophytes that cannot be exceeded. You must discard attached cards to take a new one.

#### Rules:

1. The goal is to germinate your seed first before the other players.
2. Discard any cards that fit the description of the enemy (New cards have precedence).
3. Follow instructions on bottom of cards at end of round.
4. Endophytes are stacked, such that you tally them each round. They stay with seed.
5. Seeds have a max number of endophytes that cannot be exceeded. You must discard attached cards to take a new one.

#### How to Play:

1. Separate plant seed cards from all others. Draw a random seed. Also separate how to play and rule cards.
2. Roll dice, highest number goes first then clockwise.
3. Draw endophyte card, either keep or give to other player (must take a given card).
4. Pathogens must be taken and kept attached for number of rounds on card.
5. At end of round count the impact on the bottom of the ends for each person.
6. First to zero days wins.

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### Western Yarrow



Forb



Elliptic



Common



Disturbed



**Max. 2**  
Endos



Max. Germ: 1 days

### Squirreltail Grass



Grass



Linear



Fruit



Disturbed



**Max. 4**  
Endos



Max. Germ: 13 days

### Quaking Aspen



Hardwood



Elliptic



Common



Disturbed



**Max. 7**  
Endos



Max. Germ: 18 days

### Bald-Hip Rose



Shrub



Elliptic



Common



Disturbed



**Max. 5**  
Endos



Max. Germ: 16 days

### Bull Pine



Evergreen



Needle



Cone



Disturbed



**Max. 8**  
Endos



Max. Germ: 19 days

### Climate Change

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If you have at least 2 bacterial endophytes, then proceed. If none, then discard card and draw again.

**Bacteria help**, but help the most in drier habitats.

Germ Impact: Roll Die

Odd: -3 days Forest & Arid

Even: -1 Alpine & Riparian

### Climate Change

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If you have at least 2 fungal endophytes, then proceed. If none, then discard card and draw again.

**Fungi help**, but help woody species more.

Germ Impact: Roll Die

Odd: -3 days woody species

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### Climate Change


Wildfires will increase, making life tough for seeds in ash soils.


If you have at least 2 fungal endophytes, then proceed. If none, then discard card and draw again.


**Fungi help** seeds in ash soils by helping roots to grow longer to find water and nutrients.


Germ Impact: -3 days

Common Coccus



Irregular 


Brown 


Global 


Germ Impact: -1 day


No Enemies

Common Cap



Stringy 


Brown 


Global 


Germ Impact: -2 days


No Enemies

Common Coccus



Veiny 


White 


Global 


Germ Impact: -1 day


No Enemies

Common Coccus



Circular 


White 


Global 


Germ Impact: -1 day


No Enemies

Common Cap



Stringy 


Red 


Global 


Germ Impact: -2 days


No Enemies

Common Coccus



Circular 

Yellow 

Global 

Germ Impact: -1 day

No Enemies

Green Mold



Stringy 


Green 


Global 


Germ Impact: -2 days


No Enemies

Common Coccus



Irregular 

Green 

Global 

Germ Impact: -1 day

No Enemies

### Harass Candida



Stringy



Green



Disturbed



No  
Enemies

Germ Impact: -2 days

### Beach Bacillus



Irregular



Pink



Riparian



Circular  
Bact



Germ Impact: -3 days to  
riparian seeds

### Common Aspergillus



Stringy



Blue



Disturbed



No  
Enemies

Germ Impact: -2 days

### Sky Salmonella



Irregular



White



Alpine



Pink  
Fungi



Germ Impact: -3 days to  
alpine seeds

### Forest Firmicutes



Circular



Pink



Forest



Yellow  
Bact



Germ Impact: -3 days to  
forest seeds

### Sky Salmonella



Veiny



Blue



Alpine



White  
Bact



Germ Impact: -3 days to  
alpine seeds

### Timber Treponema



Stringy



Pink



Forest



Irregular  
Bact



Germ Impact: -4 days to  
forest seeds

### Beach Bacillus



Irregular



Yellow



Riparian



Green  
Fungi



Germ Impact: -4 days to  
riparian seeds

### Arid Aureus



Circular



Red



Arid



Brown



Bact



Germ Impact: -3 days to  
arid seeds

### Scorched Stinkhorn



Stringy



Red



Arid



Pink



Bact



Germ Impact: -3 days to  
arid seeds

### Grassy Gemella



Veiny



White



Linear



Pink



Fungi



Germ Impact: -3 days to  
grassy leaf seeds

### Cone Cladosporium



Stringy



Pink



Cone



Yellow



Bact



Germ Impact: -3 days to  
cone bearing seeds

### Leafy Listeria



Veiny



Blue



Elliptic



Brown



Fungi



Germ Impact: -3 days to  
simple leaf seeds

### Fruity Fungus



Stringy



Green



Fruit



Red



Fungi



Germ Impact: -3 days to  
fruit bearing seeds

### Needle Nexacillus



Circular



Red



Needle



Pink



Bact



Germ Impact: -4 days to  
needle leaf seeds

### Forb Fungus



Stringy



Green



Forb



Forest  
Endos



Germ Impact: -3 days to  
forbs, +2 days to others

### Timber Treponema

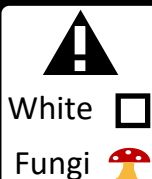


Stringy

Green

Forest

Germ Impact: -3 days to forest seeds



### Simple Shigella



Circular

Yellow

Disturbed

Germ Impact: -2 days



### Simple Shigella

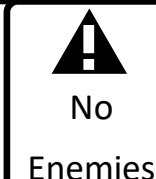


Circular

White

Global

Germ Impact: -2 days



### Needle Nylum



Stringy

Yellow

Needle

Germ Impact: -4 days to needle leaf seeds



### Alien Actinomyces



Circular

Black

Disturbed

Germ Impact: Roll Die  
 Odd: -2 days; Even: +2 days



### Grassy Gold Truffle

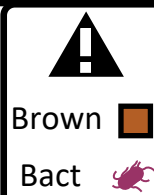


Stringy

Yellow

Linear

Germ Impact: -3 days to grassy leaf seeds



### Flowering Fusarium



Stringy

Red

Common

Germ Impact: -4 days to common flower seeds



### Petty Portobello



Stringy

Yellow

Global

Germ Impact: Roll Die  
 Odd: -3 days; Even: +4 days



### Rough Rhizobium



Irregular



Blue



Disturbed



Green



Fungi



Germ Impact: -4 days to  
disturbed seeds

### Rough Rhizobium



Veiny



Yellow



Disturbed



White



Bact



Germ Impact: -3 days to  
disturbed seeds

### Broken Bolete



Stringy



Pink



Disturbed



Veiny



Bact



Germ Impact: -3 days to  
disturbed seeds

### Broken Bolete



Stringy



White



Disturbed



Brown



Fungi



Germ Impact: -3 days to  
disturbed seeds

### Pathogen



Smut

Germ Impact:  
+2 days to grasses  
(+1 to Others)  
Duration: 2 rounds

### Pathogen



Virus

Germ Impact:  
Roll Die  
Add # rolled  
Duration: 1 round

### Pathogen



Mistletoe

Germ Impact:  
All endophytes +1 day  
to each  
Duration: 2 rounds

### Pathogen



Nematode

Roll Die Once  
Odd: Eats all bacteria  
Even: Eats all fungi  
(Effect lasts full duration)  
Duration: 3 rounds