



# Barrel Medic Plant

*Medicago truncatula*



# THE TEAM

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



# THE SCIENTIST

## **DR. ARMANDO BRAVO**

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PhD, Assistant Member &  
Principal Investigator

"I've always enjoyed being able to help students figure out their next step, whether they enjoy plant science or not. Figuring out what you don't like is just as important as figuring out what you do like"



**Armando Bravo | Principal Investigator | Danforth Center**

Dr. Armando Bravo is an Assistant Member at the Donald Danforth Plant Science Center. Learn more about his plant science research.

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# The Barrel Medic Plant

## **Semi-Prostrate Annual Legume**

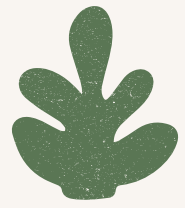
- Lays flat on the ground and is a plant that completes its life cycle within one year
- Grown as a forage crop
- In regions of Australia and the Mediterranean area

\*Barrel Clover



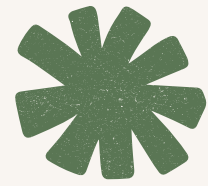


# Barrel Medic



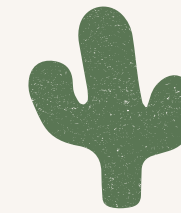
## Plant Description

**The barrel medic is a small annual weedy legume species and a close relative of alfalfa. It serves as an important forage legume in regions of Australia and the Mediterranean area (Küster, 2013).**



## Plant Biology

**It is a semi prostrate annual with ascending stems to 15-50 cm high. It branches from the base and produces a large number of runners.**



## Plant Shape

**Its vegetative parts are variably covered with hairs. The leaves are alternate, trifoliolate, with sharp serrations on the upper half.**



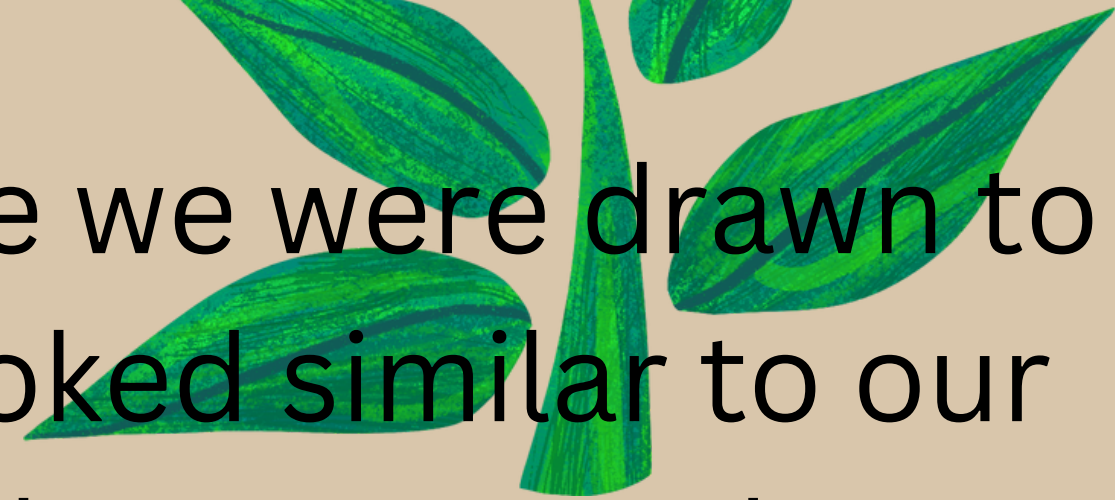
# ***LIFE CYCLE AND SOIL TYPE***

Barrel medics succeed in Mediterranean climates with cool, moist winters and long, hot, dry summers (Quinlivan et al., 1986).

Barrel medics require neutral to alkaline soil pH (6.8-9.0). They have adapted to alkaline to strongly alkaline soils, especially with a high lime content.



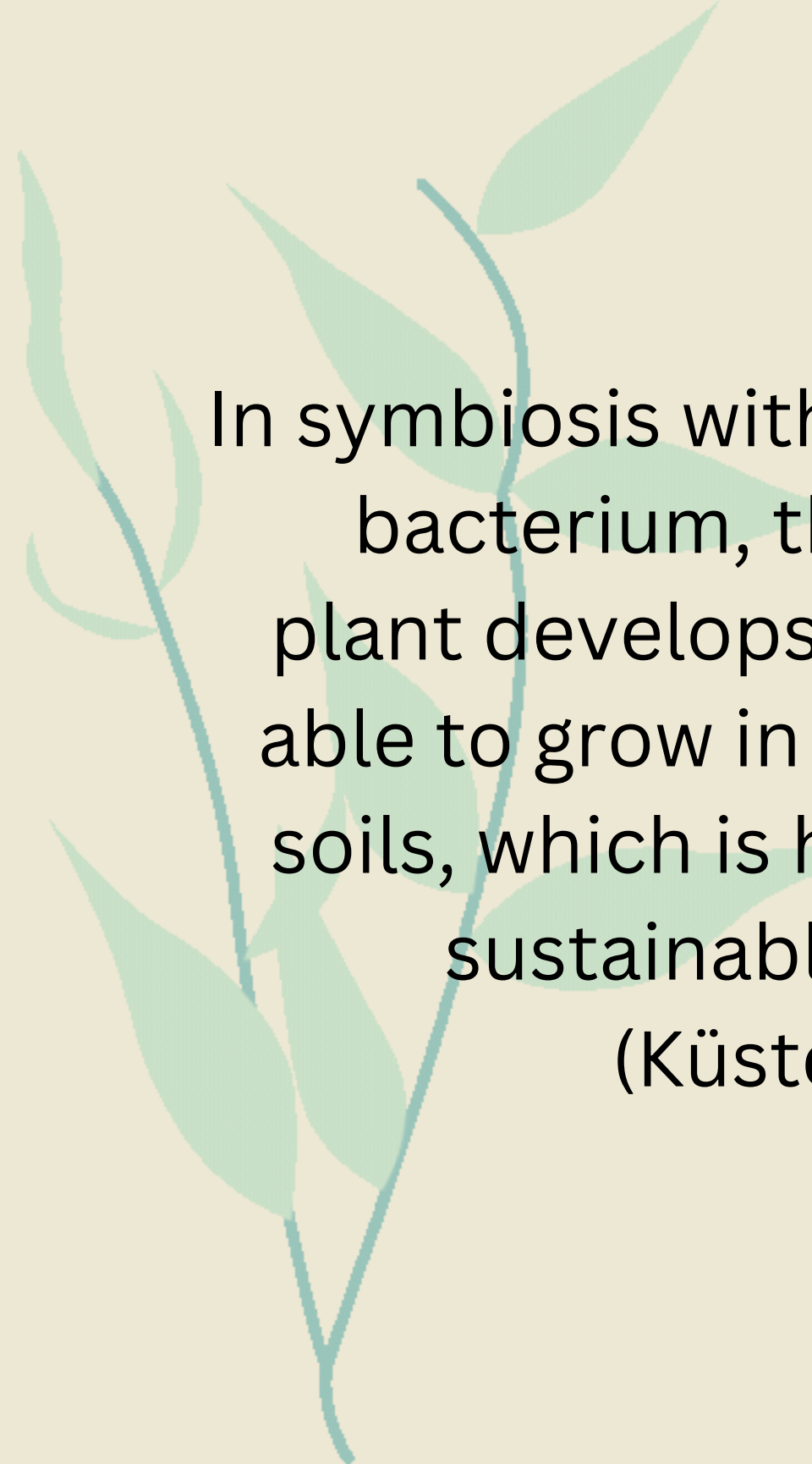
# Why did we choose the Barrel Medic?



Our team chose the Barrel Medic Plant because we were drawn to its detailed structure and colorways, which looked similar to our everyday views in nature. We were excited to learn more about this plant and all the different parts it consists, as well as the effects on the environment. We enjoyed researching and doing the 3D model of the flower part the most, even though it was the most challenging. The four of us enjoy to challenge ourselves!

# Impact on Society


## (through the environment)



In symbiosis with nitrogen-fixing soil bacterium, the barrel medic plant develops root nodules. It is able to grow in nitrogen-depleted soils, which is highly beneficial in sustainable agriculture (Küster, 2013).

According to Peaceful Valley (1988), the barrel medic plant is beneficial for orchards, vineyards, or crops with limited summer water and credited for having excellent feed value (UC Agriculture and Natural Resources).



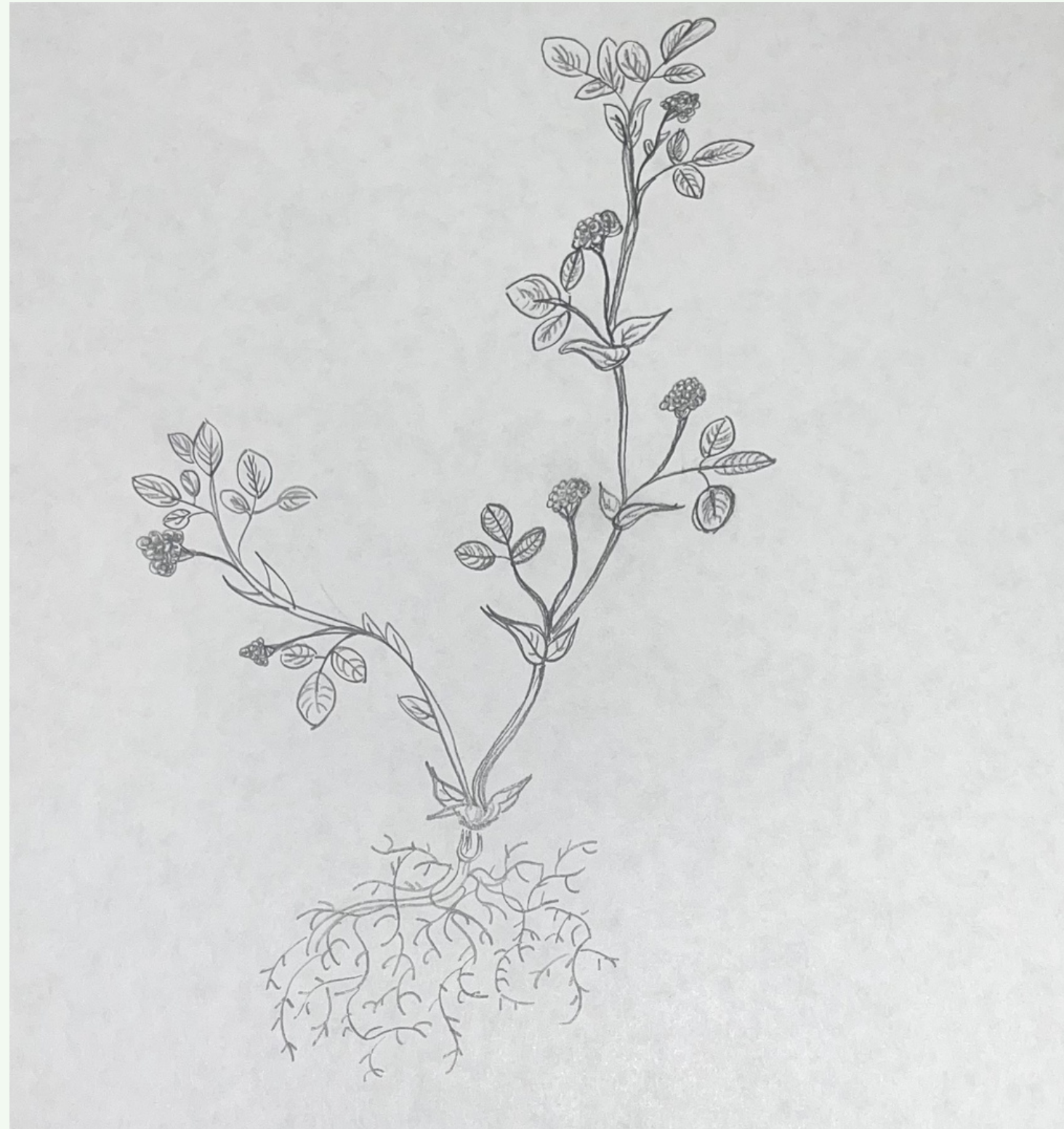
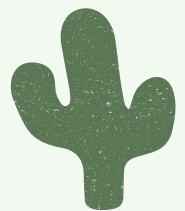
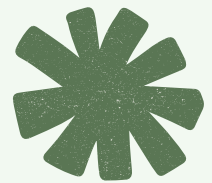
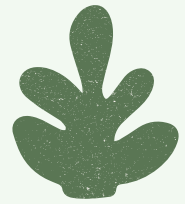


# Design Process

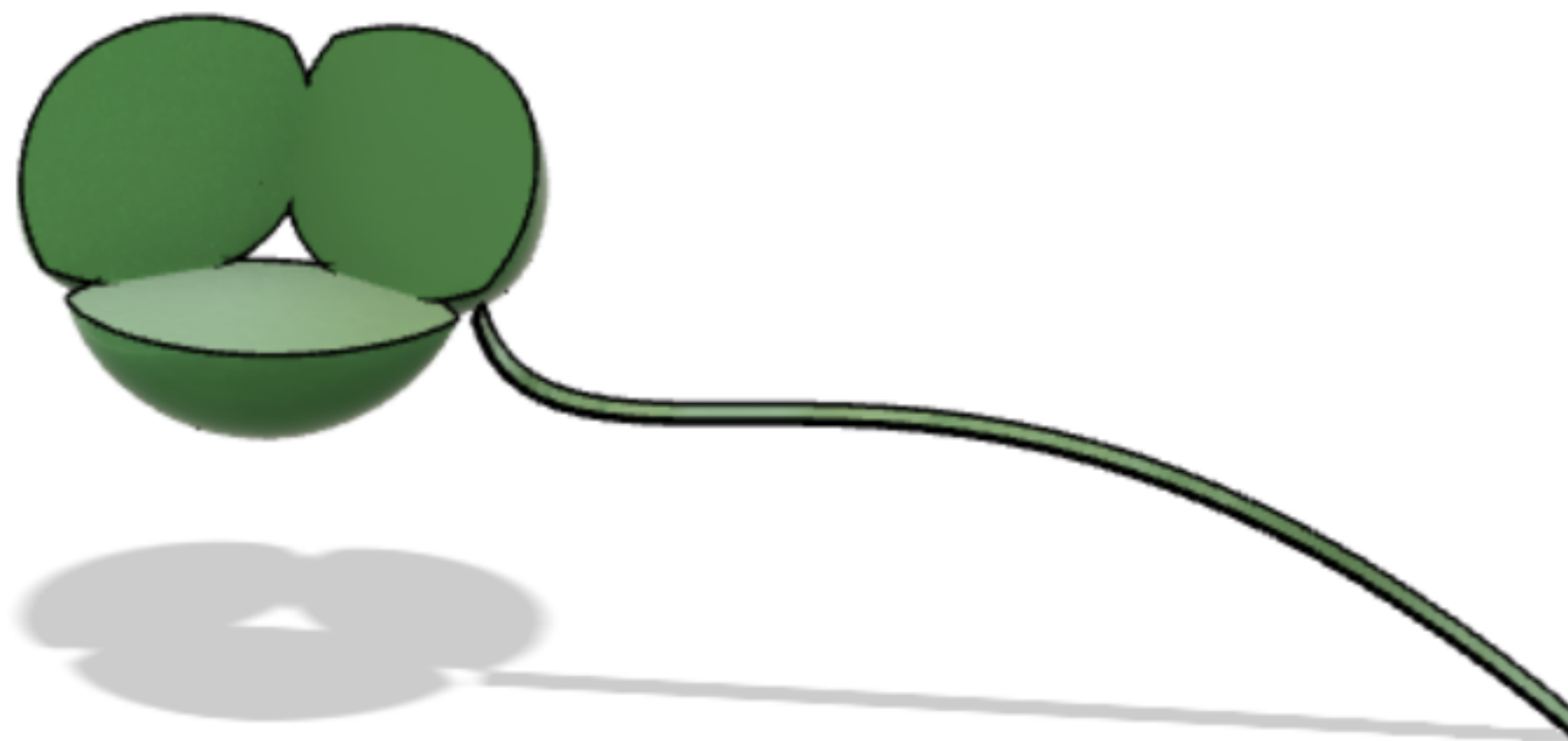
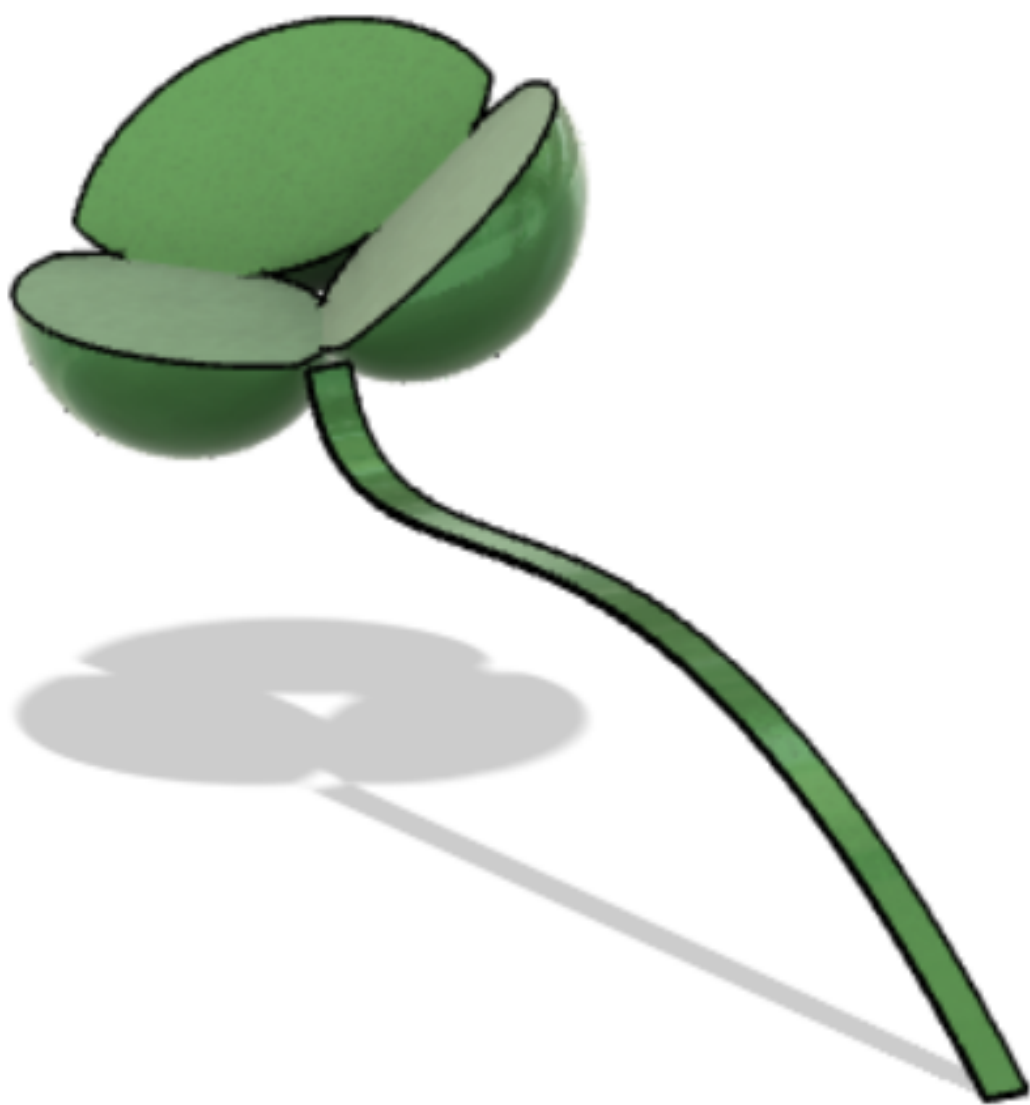
What did we do? How did we do it?

1. Our artist sketched the flower part of the plant on paper
2. She transferred the image onto Fusion 360 after watching tutorials on how to work the site
3. She then completed the design after 10+ tries to get it as intricate as possible

# The Sketch



# ***THE 3D MODEL***









# THE POSITIVE AND NEGATIVE CHALLENGES

Simplicities: researching was manageable and interesting to learn about the barrel medic, familiarity with the shape of the plant was a positive

Difficulties: the 3D Model was very difficult at first, but once Fusion 360 gave us experience, it became a fun process

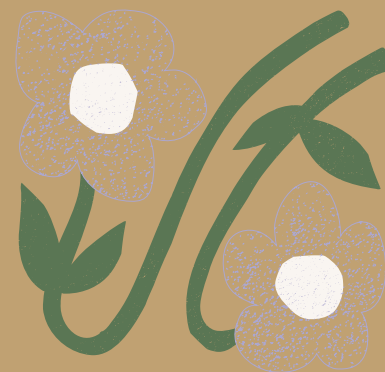
# Sources

[https://keys.lucidcentral.org/keys/v3/pastures/Html/Barrel\\_medic.htm](https://keys.lucidcentral.org/keys/v3/pastures/Html/Barrel_medic.htm)

<https://www.feedipedia.org/node/274>

<https://www.feedipedia.org/node/274>

<https://sarep.ucdavis.edu/covercrop/barrelmedic>



# Danforth Worksheet

[https://www.canva.com/design/DAFSCuoYVnc/-X0ht903azhWA1Af4-zA8Q/edit?](https://www.canva.com/design/DAFSCuoYVnc/-X0ht903azhWA1Af4-zA8Q/edit?utm_content=DAFSCuoYVnc&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton)

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