



# Propagating Hemp for CBD

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# Methods

- ▶ Seed
  - ▶ Regular
  - ▶ Feminized
- ▶ Vegetative Cutting (Cloning)

# Source Material

- ▶ Source material Locally or from Compliant States
- ▶ Request Analytics
- ▶ Inspect plant material for pests and disease



# SEED PROPAGATION

# Hemp Propagation From Seed:

What do you need to know

## Annual Life Cycle

- ▶ Germinates readily
- ▶ Existing methods will work
- ▶ Genetic variability

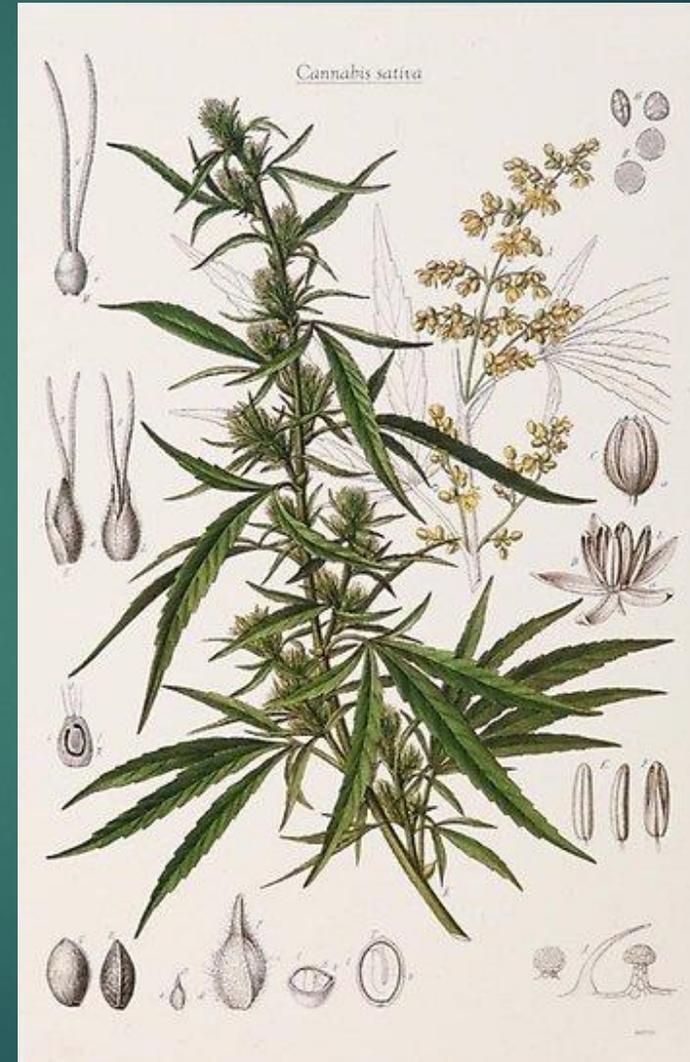


# Hemp Propagation From Seed:

## What do you need to know

### Dioecious

- ▶ Male and Female Flowers on different plants
- ▶ Regular seed 50/50, male/female
- ▶ CBD highest in unfertilized flowers
- ▶ Pollen bearing plants must be removed from crop



# Hemp Propagation From Seed:

## What You need to Know

### Hermaphrodites

Develop male and female flowers on same plant.

Look for male flowers even on your feminized seedlings!!



# What is Feminized Seed?

- ▶ Female plants are treated with hormones (usually silver thiosulfate) which prevent ethylene production essential in the development of female flowers
- ▶ Treated female plants produce male flowers and pollen
- ▶ Females fertilized with this pollen produce seeds that are (almost) all female

# Regular vs. Feminized Seed

## Regular

- ▶ Less expensive
- ▶ 50% males so need more seed
- ▶ Males will need to be germinated, grown on until sexed, then destroyed
- ▶ Sexing process may delay transplant

## Feminized

- ▶ More expensive
- ▶ Less resources wasted on identifying males
- ▶ Small percentage of plants may still produce pollen

# Seed Propagation Details

- ▶ 1/4" – 1/2" Deep
- ▶ Well aerated media
- ▶ Containers
  - ▶ Plug tray
  - ▶ Packs
  - ▶ Pots



# Seed Propagation Details

- ▶ Environment
  - ▶ Temp 70 – 80F
- ▶ Lights - Inside
  - ▶ T5, T8, florescent
- ▶ Greenhouse
  - ▶ Supplemental Lighting





# Vegetative Propagation

# Vegetative/Clone Propagation

## CONTROL

- ▶ Genetics
- ▶ CBD/THC %
- ▶ Plant quality
- ▶ Pests/Disease

## RESOURCES

- ▶ Controlled environment
- ▶ Labor and expertise
- ▶ Good genetics



# Production of Vegetative Clones

- ▶ Healthy Mother Plants
- ▶ 3-5 nodes
- ▶ Stem tissue should be mature enough to stick (not bend )
- ▶ Apply hormone to base
- ▶ “Stick” Cuttings ASAP



# Clone Production - Details

## AFTER CARE

- ▶ High Humidity
- ▶ Stable Environment
- ▶ Good Sanitation



# Purchasing Seedlings or Clones

## Advantages

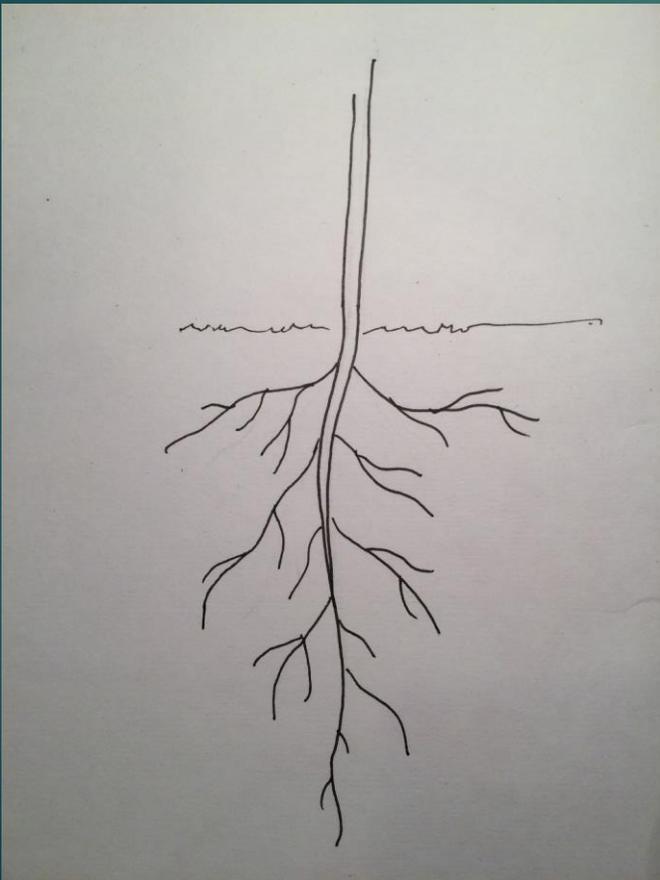
- ▶ Don't need GH or lights
- ▶ No labor to produce
- ▶ Variety

## Challenges

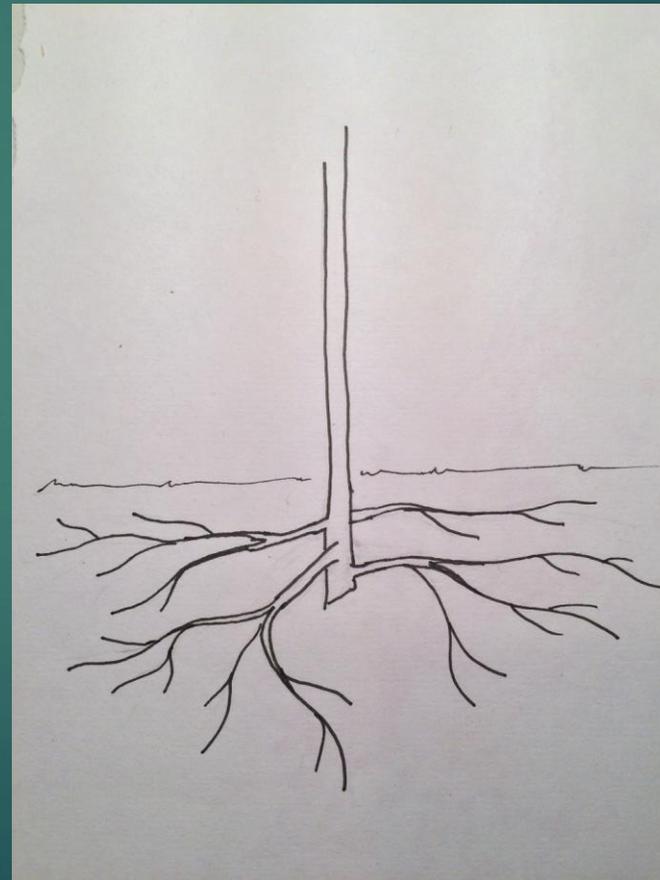
- ▶ Quality of plants
- ▶ Pest and disease issues
- ▶ Compliance / CBD%

# Root System Comparison

Seedling



Clone

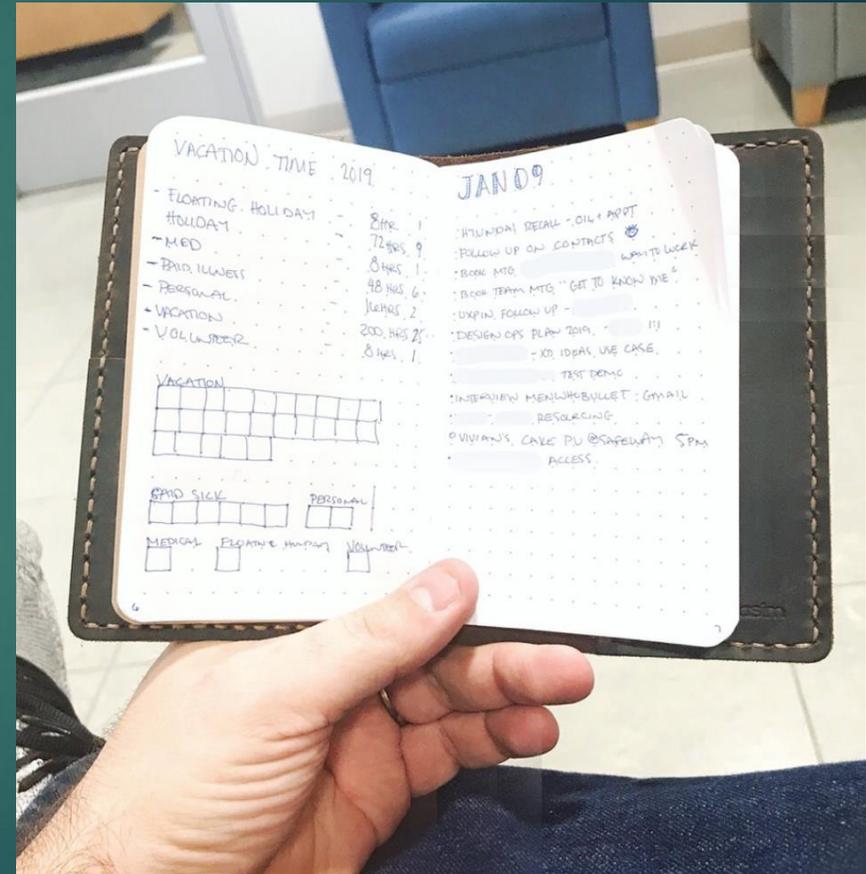


# Cloning issues can decrease root stability



# Experiment to develop effective systems

- ▶ Try new methods or materials carefully
- ▶ Use cheap seed to evaluate techniques
- ▶ Keep good records to improve on past experiences



# Future of Hemp Propagation

- ▶ Tissue Culture
- ▶ Trademarks and Patents prohibiting propagation
- ▶ Established Horticulture and Ag business entering Hemp market

