

## INTRODUCTION TO CANNABIS PRODUCTION AND PROCESSING

### I. Forms of Cannabis

#### Flower

- Dried flowers of the cannabis plant are what most people think of when they hear marijuana
- Can be smoked or vaporized—eating flower will not work because THC doesn't become psychoactive unless it is heated
- High THC and High CBD Strains available

#### Concentrates

- Cannabinoids and terpenes are separated from the plant material through some variation of a basic 2-step process:
  1. A solvent is introduced to the plant material in order to extract the cannabinoids and terpenes
  2. The solvent is purged using heat, pressure or agitation
- Common solvents used include butane, propane, CO<sub>2</sub>, liquid oxygen, water and others
- Concentrates can be smoked or vaporized using a vape pen or a dab rig
- If the concentrate is heated adequately during the purge process, it can also be eaten (it is usually used as an ingredient in a food item as plain concentrates do not taste good)

#### Edibles

- Edibles can be made by mixing raw cannabis with a fat like butter or coconut oil over heat. The plant material is then strained out, but the cannabinoids bond to the fat molecules, thereby medicating the butter or oil.
- Edibles manufacturers add the medicated butter or oil (or a concentrate as mentioned above) to food products, making cannabis edibles.

#### Smoking vs. Eating

- When cannabis flowers or concentrates are smoked or vaporized, onset of effects is immediate
- This allows for the most precise dosage control—if it feels too strong, you simply stop smoking
- Downside of smoking and vaporizing—lung irritation
- Edible cannabis takes anywhere from 20 minutes to two hours to take effect—makes dosage control harder
- Edible cannabis causes longer lasting and more intense effects

### II. 3 Stages of a Cannabis Plant's Lifecycle

#### 1. Clone/Seedling

- A cannabis plant begins life as a seed or a cutting taken from another plant
- The seed or clone must sprout roots, which typically takes 1-3 weeks

#### 2. Vegetative Growth

- Once the plant is rooted, it begins a period vegetative growth
- Here the plant gets larger and develops strong roots and branches in preparation for flowering
- Vegetative growth can continue indefinitely as long as the plants receive the correct amount of light

### 3. Flowering

- Here the plant produces the flowers which are dried and smoked
- Flowering is triggered by shortening the portion of the day where the plant is exposed to light. Outdoors, this happens naturally as the days shorten with the approach of fall. Indoors, growers provide plants with light for 18-24 hours each day during vegetative growth, then cut the light to 12 hours each day when they are ready to induce flowering.
- Each plant has a genetically predetermined flowering period—typically 8-10 weeks. At the end of that time plants will be at peak potency and ready to harvest

## III. Indoor, Outdoor and Greenhouse Cultivation

### Indoor

- Mostly in warehouses
- Experienced cultivators can have 5-6 harvests per year
- More control over the environment means more potential to optimize conditions
- Can contain smell using carbon filters
- Easier to secure
- Most cannabis sold in Oregon retail stores is indoor
- Fetches higher price than outdoor (Retail \$8-15/gram; Wholesale \$2000-2800/pound)

### Outdoor

- Much larger plants than indoor
- Typically harvest much more with outdoor, but only 1 harvest per year
- Harder to secure than indoor
- Generally seen as less desirable by consumers
- Not well suited to Willamette Valley—typically rains here before crop is fully mature, causing mold problems
- Lower price than indoor (Retail \$4-7/gram; Wholesale \$900-1500/pound)

### Greenhouse

- Hybrid of indoor and outdoor styles
- Can get up to 3 harvests per year using light deprivation techniques
- Less control of environment than indoor/more than outdoor
- Less ability to mitigate smell than indoor/more than outdoor
- Price typically falls between indoor and outdoor (Retail \$5-9/gram; Wholesale \$1200-1700/pound)

## IV. Processing

### Processing Includes

- Packaging for sale
- Producing concentrates
- Producing topicals and edibles