



The Rise of Cannabis in the Food Industry

Food Safety Summit

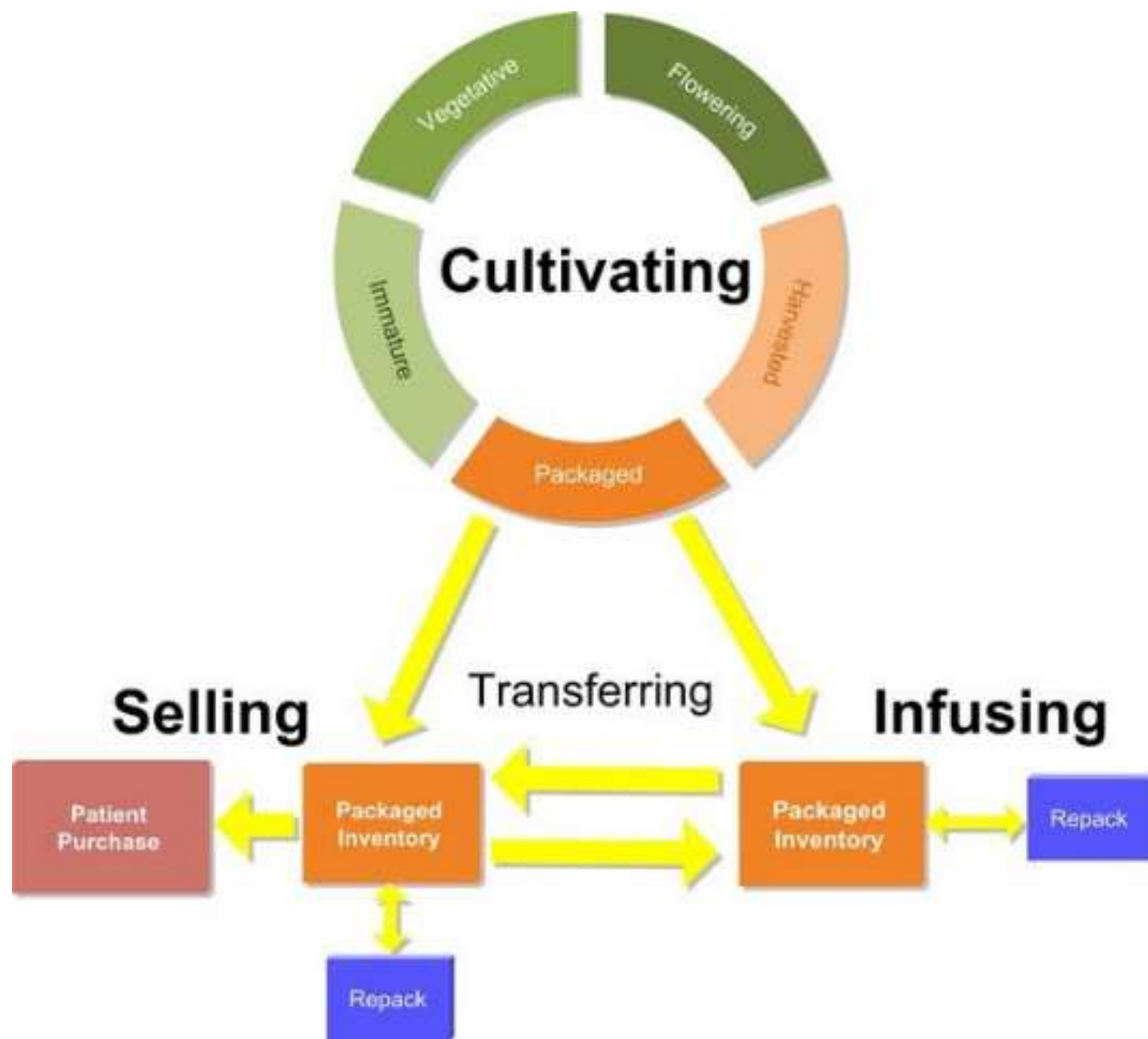
May 11, 2023

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Agriculture

- Cultivation
- Harvesting and Trimming
- Drying and Curing might be “Processing”
 - The importance of water activity
- Trimming of dried flower







Immature Plants



Vegetation Stage

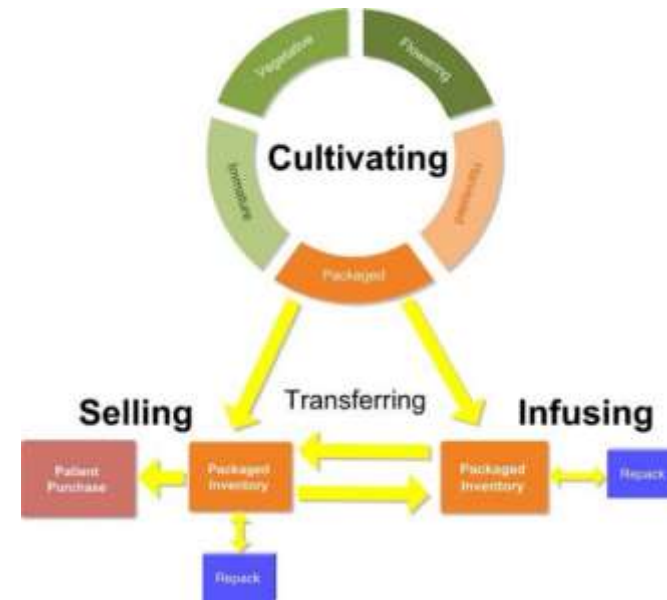


Flowering Stage



Harvested Cannabis

- Final step in the growth cycle
- “Batch size”¹
- Flower final destination
- Shake/trim final destination





EAS Consulting Group
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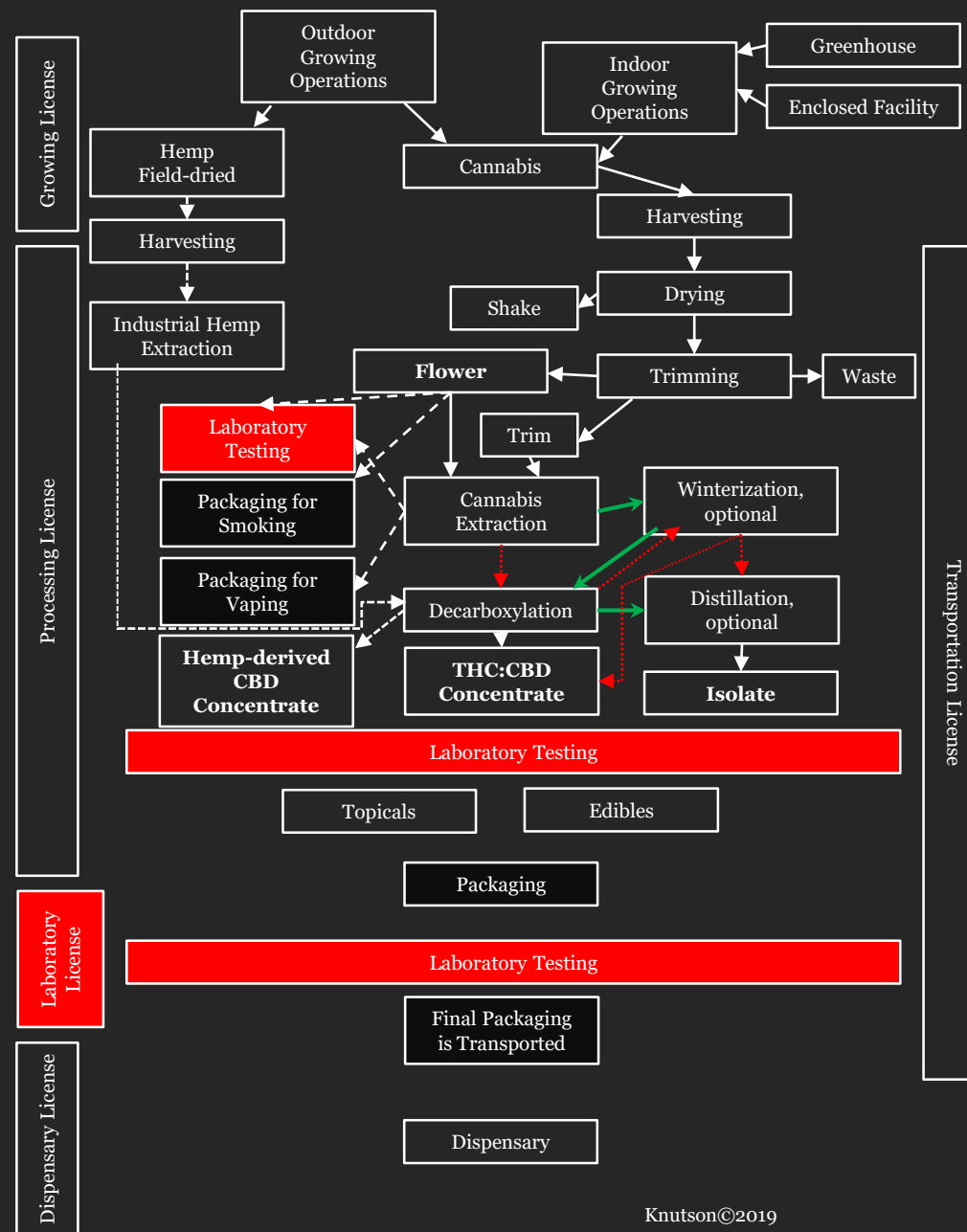
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Flow Diagram of Edible Manufacture



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Never assume.

- Cannabis-infused edibles are not food or dietary supplements.
- GMPs are required by a few states.
- Delaware does not classify a tincture as an edible.
- Oklahoma originally did not require testing or seed-to-sale tracking in 2019. Mandated testing started April 2020. Tracking started May 2022.
- Just because a state has legalized does not mean the state code is written and implemented.
- New state code can become effective immediately.

Washington State Legislature: Marijuana-Infused Edibles (MIE)

- (4) The department will not approve an MIE for commercial sale if it is a potentially hazardous food. The following non-exhaustive list includes foods prohibited as MIEs:
 - (a) Any food that must be temperature controlled (frozen, refrigerated, hot holding) for food safety;
 - (b) Foods that required acidification to assure food safety (for example, ready-to-drink tea and barbecue sauce);
 - (c) Foods that must be retorted or pasteurized to assure food safety;
 - (d) Dairy products of any kind such as butter, cheese, ice cream, or milk;
 - (e) Fruit or vegetable juices, except shelf stable concentrates;
 - (f) Oils and vegetable butters;
 - (g) Pies containing egg such as pumpkin or custard;
 - (h) Dried or cured meats;
 - (i) Jams, jellies, and related products with sugar to fruit ratio less than provided by 21 C.F.R. Part 150.

A cannabis facility has food defense on steroids.

- Potential characteristics of a cannabis facility
 - No business sign
 - Maybe address number on the building
 - Completely and securely fenced
 - Locked outer front door
 - Cameras on all sides of building
 - Picture ID at reception
 - Escort at all times
 - No dead spots with cameras
 - Armed security guards at Receiving and entrance; Armed security guards in tandem for transportation



Extraction is Processing

- Oil-soluble cannabinoids are extracted from the plant material with a solvent.

Hexane, butane

- Food-grade solvents

Ethanol

Supercritical CO₂

- Broad spectrum extract, Distillate, Isolate
- Dilution with MCT oil for dosage



Cannabis-Infused Edible Manufacturing

- Create a supply chain preventive control for the cannabis extract
- Substitute for oil or butter in a recipe
- Most edibles are low a_w , ready-to-eat, shelf-stable
 - Bot toxin is a hazard identified by the city of Denver in extract or tinctures



Packaging and Labeling

- Opaque
- Tamper-evident
- Child-resistant
- Not appealing to minors
- Do not use Nutrition Facts or Supplement Facts unless approved in the state code.
- Display
 - Dosage
 - Nutritional information
 - Allergen declaration

Dispensaries are for Retail Sales

- Similar to the pharmacy experience; medical card
- Armed security
- Budtender
- Glass display cases to see the product
- Often cash only
- Leave with sealed bag



Cannabis Laboratories

- Third-party lab
- Testing at multiple steps of every batch of edibles
 - Hold and release
 - More expensive than what the food industry pays
 - Small sample size
 - Submission of one packaged product

Laboratory Analysis

- Cannabinoids
- THC, CBD and more!
- Terpenes
- Chemical Analysis
- Pesticides
- Heavy metals
- Residual solvent
- Mycotoxins
- Aflatoxin
- Microbial Analysis
- Aerobic Plate Count
- Total Yeast and Mold Count
- *Staphylococcus aureus*
- Shiga-toxin producing *E. coli*
- *Aspergillus* Count

Thank you!

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