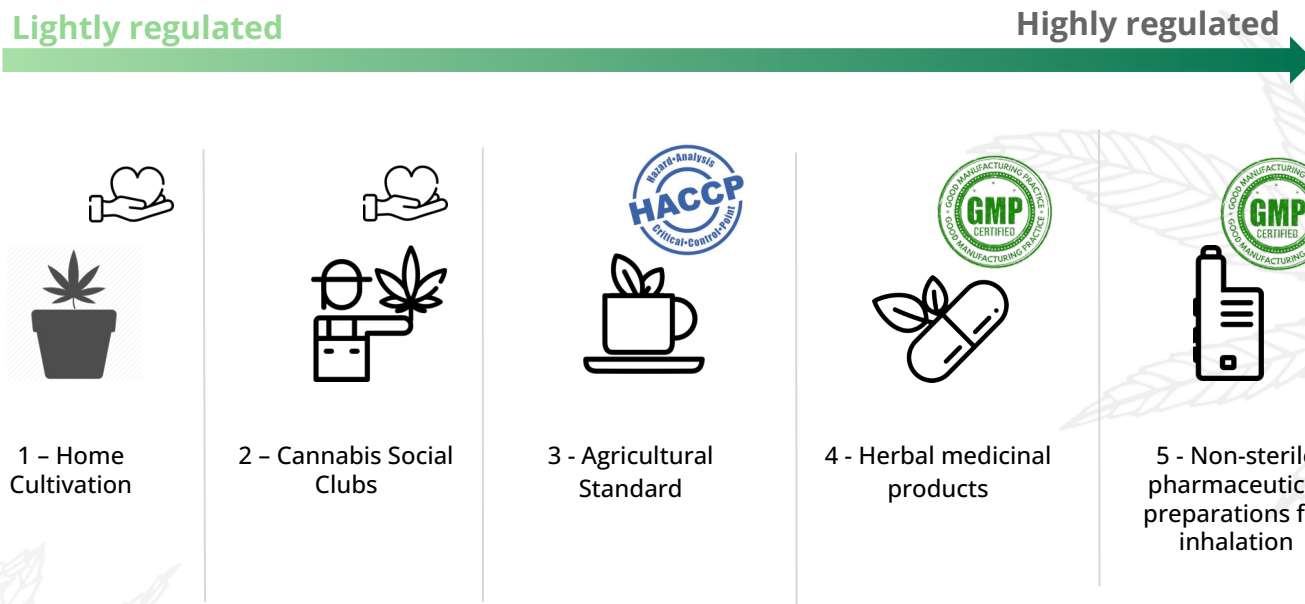



Production models

Overview of five production and quality models



Production model 1 - Home Cultivation

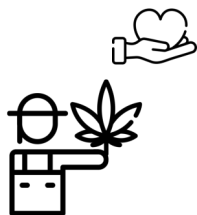


Self-supply through home cultivation

Target group	<ul style="list-style-type: none">Hobby gardeners / scientists / growersLower-income consumers
Quality specifications	According to the know-how and preferences of the grower
Cultivation	Outdoor (balcony, garden), or indoor (grow tent)
Manufacturing	According to the know-how and preferences of the grower
Pro	<ul style="list-style-type: none">Good for hobby gardeners, low-income consumersEqual status to other legal drugs and stimulantsDestigmatisation
Cons	<ul style="list-style-type: none">Quality and energy consumption vary with growing method (indoor vs. outdoor) and knowledge of the growerPotentially higher risk for contamination with inexperienced growersProtection of minors more difficult to controlNo tax revenue for the state

Production models

Production model 2 - Cannabis Social Clubs (CSCs)



Associations for
home cultivation

Target group	<ul style="list-style-type: none">• Associations of consumers for collective cultivation and consumption• Hobby gardeners / scientists / growers• Lower-income consumers
Quality specifications	<ul style="list-style-type: none">• Association sets its own quality standards• Membership of passionate and experienced growers• Quality control by organisers and members of the CSC• Random controls by the food authority possible
Cultivation	As sustainable as possible, according to ENCOD Guidelines and the preferences of the CSCs and its members
Manufacturing	According to ENCOD Guidelines as well as the preferences of the CSC and its members
Pro	<ul style="list-style-type: none">• Product quality at "craft level" depending on the grower's skills• Sustainable and on-demand production through short supply chains and good demand estimation• Space for cannabis culture and "safe space" for consumption
Cons	<ul style="list-style-type: none">• Quality and energy consumption vary with cultivation method and cultivation region• No tax revenue for the state

Production model 3 - Agricultural standard



Standard for
food tea

Target group	Microbially mostly safe product for consumers with a functioning immune system
Quality specifications	<ul style="list-style-type: none">• ISO standards, industry standards• Maximum levels of contaminants specified, but only randomly checked by authorities
Cultivation	GACP in greenhouse facility or open field
Manufacturing	GACP, GAP guidelines, DLMB, 2016, BBodSchG, 2015, HACCP system
Pro	<ul style="list-style-type: none">• Lower price due to less energy consumption meaning lower investment costs, know-how and analyses• Inclusion of farms resulting in a high number of suppliers
Cons	<ul style="list-style-type: none">• Possible higher use of herbicides and pesticides• Possible heavy metal contamination• Long-term inhalation of microbially contaminated product could cause lung damage

Production models

Production model 4 - Herbal medicinal products according to Ph. Eur. 5.1.8., category C



Standard for herbal medicinal products e.g. powder capsules

Target group	<ul style="list-style-type: none">Microbially a sufficiently safe product for consumers with a healthy immune systemAppropriate quality requirements for recreational cannabis
Quality specifications	<ul style="list-style-type: none">DAC/ NRF Monograph "Cannabis FlowersEuropean Pharmacopoeia monograph Ph. Eur. 5.1.8 "Microbiological quality of herbal medicinal products for oral use and extracts used in their preparation", category C
Cultivation	GACP in greenhouse facility or open field
Manufacturing	Global GMP-Standards
Pro	<ul style="list-style-type: none">Standard sufficient for consumers with healthy immune systemsGlobally high supply of qualified suppliersOrganic and "craft" production can also meet this quality standard
Cons	<ul style="list-style-type: none">People with weakened immune systems should be aware of potential side effects

Production model 5 - Non-sterile pharmaceutical preparations for inhalation according to Ph. Eur. 5.1.4.



Current standard for medical cannabis

Target group	<ul style="list-style-type: none">Microbially safe product for people with a weak immune systemPharmaceutical quality requirements for medical cannabis
Quality specifications	<ul style="list-style-type: none">DAC/ NRF Monograph "Cannabis flowers"Monograph Ph. Eur 5.1.4. "Microbiological quality of non-sterile products for pharmaceutical use"
Cultivation	GACP in high-tech indoor or greenhouse facility
Manufacturing	EU-GMP
Pro	<ul style="list-style-type: none">Safe product also for immunocompromised consumersConstant active ingredient content due to maximum controlled environmental conditions
Cons	<ul style="list-style-type: none">Higher costs in production lead to higher product pricesLimited choice of suppliers due to high investment costs and know-howCompeting with medicinal cannabis market, potential supply deficit for patientsHigh input of energy and resources needed for productionSufficient supply probably not guaranteed