



GROWING RESPONSIBLE AND SOCIALLY SUSTAINABLE CANNABIS

(GRASS-C)

BEST MANAGEMENT PRACTICES VERIFICATION PROGRAM

OVERVIEW	1
Introduction	1
Purpose	1
INSTALLATION OF GROWING OPERATION	2
Land Use & Conservation Measures	2
Planting Setup	5
OPERATION AND MAINTENANCE PRACTICES	7
Crop Water Use	7
Waste Management	12
Soil Management	14
Materials Storage	15
Pest Management	17
WORKFORCE	18
Social Equity and Labor Management	18

OVERVIEW

Introduction

The Compassionate Use act (Proposition 215) and the Adult Use Act (Proposition 64) changed the cannabis industry in California from a black market to a viable commercial commodity. With new licenses at the county and state level being issued for legal cannabis production, it is imperative best management practices (BMPs) are employed to prevent habitat degradation and ensure sustainability of both growing practices as well as natural resources. The Upper Salinas – Las Tablas Resource Conservation District, in collaboration with cannabis growers, researchers, resource agencies, and other technical experts have put together a program to allow gradation of certified cannabis growers for San Luis Obispo County.

Purpose

The purpose of this program is to establish all the necessary best management practices known for cannabis production within San Luis Obispo County, California. Although this program is solely focused on the political boundaries of San Luis Obispo County, it is the intent of the program to be applicable and adapted to other regions within the state for cannabis production. The goal of this program is to objectively identify, prioritize, and rank natural resource issues relevant to cannabis production. In order to do so, the program looks at both the macro and micro-scale resource concerns and has set criteria and best management practices (BMPs) for the varied cannabis growing methods (i.e. greenhouse, hoop house, outdoor).

The following are guiding principles to achieve sustainable cannabis production and resource management.

1. Help protect, conserve, and enhance natural resources
2. Design alternatives that meet local resource planning criteria for identified resource issues
3. Include human concerns for achieving sustainable agricultural systems
4. Consider the effects of planned actions on interrelated geographical areas (i.e., looking off-site, beyond the planning unit boundary)
5. Consider and explain the interaction between ecological communities and society
6. Focus on ecological principles
7. Consider the effects, risks and interactions of planned systems and practices on the natural resources, as well as economic and social considerations
8. Identify where indigenous stewardship methods might be needed or explored
9. Assist with development of plans, regardless of scale, which will help achieve the objectives
10. Identify where knowledge, science, and technology need to be advanced

INSTALLATION OF GROWING OPERATION

Land Use & Conservation Measures

Prior to establishing a cannabis grow facility, it is important to assess and evaluate the location of the operation in proximity to natural resources. Below are BMPs for various categories of land use resource issues.

Topography - Planting on slopes greater than 30% should have hillside terraces that match the contours of the landscape. Whether the operation is a greenhouse, hoop house, or outdoor, installation and management of the site should follow the topography to reduce potential for soil erosion.

1. Has a consultation with local agencies (i.e. Resource Conservation Districts [RCD], University of California Cooperative Extension [UCCE], California Department of Food and Agriculture [CDFA]) occurred or has the applicant used agency resources to complete a conservation plan?

Yes (2pts) No

If yes, list the Agency and your contact or resource used:

2. Prior to planting, were the percent slope, aspect of each planting location, and the total acres of land within different levels of erosion risk identified?

Yes (2 pts) No NA (Indoor facility)

Soils – A preliminary inventory of soils should be done prior to any earth movement activities. The Natural Resource Conservation Service Web Soil Survey (<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>) provides accurate information about the types, depths, and properties of soils for continental United States. Highly erosive soils, alkaline, or soils not-conducive for outdoor operations should be avoided.

- Attach NRCS soil survey map to this document.

Light/Sun – At the onset, the operator should make the determination about how to provide adequate light for growing cannabis. During varying stages of plant maturity, light, and consequently the lack of, can alter the timing of different physiological changes in the plant. If

an operator chooses to rely solely on the sun as a light source, attention should be made for the number of hours/day of sunlight is present throughout the growing season. If using artificial light, the operator should have a plan for number of hours of light exposure needed to induce various stages of plant growth.

1. Does the operation use artificial light?
 Yes No (2 pts)
2. Has any native vegetation removal occurred to develop a planting area?
 Yes No (2 pts)
3. What percent of total grow time is reliant on artificial light?
 0-25% (4 pts) 25-50% (3 pts) 50-75% (2 pts) 75-100% (1 pt)

Access/Roads – All access roads need to be installed and maintained to reduce impacts to hydrology and soil by limiting erosion and sediment. Roads should be constructed to avoid watercourses to the best ability. In addition, proper rural road construction BMPs such as those found in the Pacific Watershed Associates Handbook for Forest, Ranch, and Rural Roads (http://www.pacificwatershed.com/sites/default/files/roadsenglishbookapril2015b_0.pdf).

1. Are access roads constructed to minimize erosion?
 Yes (2 pts) No
2. Are there signs of rilling, ponding, or gulying on any access roads?
 Yes No (2 pts)
3. Are appropriate crossings and drainage systems installed?
 Yes (2 pts) No

Waterbodies – Each facility should be aware of the waterbodies surrounding their property and have established strategies to protect those resources. For example, operations should have minimum setbacks from various waterbody classifications (*i.e.* perennial, intermittent, ephemeral, or man-made drainage) to reduce contamination of watercourses. United States Fish and Wildlife service provides an online wetlands mapper tool (<https://www.fws.gov/wetlands/>) that can be used to identify watercourses and wetlands throughout the United States.

1. Has the operation identified waterbodies occurring on site?
 Yes (2 pts) No
2. Have downstream basins been identified?

Yes (2 pts) No

3. Are there established minimum setbacks from waterbodies?

Yes (2 pts) No

Fill in the table with the appropriate waterbody and estimated setback for each.

Waterbody Type	*Total Number	Minimum Setback
Perennial		
Intermittent		
Ephemeral		
Man-made drainage		

*note: calculate the total number of each waterbody type occurring on the property.

4. What is the condition of the setbacks?

Good (3 pts) Fair (2 pts) Poor

Fish and Wildlife Resources – It is recommended a conservation plan be in place and updated every five (5) years. A Resource Conservation District (RCD) plan or equivalent is acceptable. A grow operation should identify any sensitive fish and wildlife species present on the property and develop conservation practices to minimize impacts. Example BMPs would be incorporating predatory bird stands, protection of stream habitat, preservation of wetlands, and forest/woodland area management.

1. Has the operation conducted any biological surveys or studies?

Yes (2 pts) No

If yes, attach any surveys or studies.

2. What percent of the property is maintained as non-productive habitat (i.e. native and naturalized grasses, flowering plants, shrubs and trees, edges and corridors)?

>60% (4 pts) >30-59% (3pts) 10-29% (2 pts) <10% (1 pt)

Attach map marked with percent of property maintained in non-production.

Cultural Resources – Prior to any grading, all cultural resources should be identified and mapped, especially in areas known to have historic activity or sites.

1. Has a cultural resources survey been conducted prior to installation?

Yes (2 pts) No

2. Have measures been made to protect any cultural resources?

Yes (2 pts) No

If yes, describe what has been done or planned to be done:

<p><i>Overall ranking score for land use and conservation measures:</i></p> <p>_____ <i>Points out of 37 Points Possible</i></p>
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Planting Setup

Power – Cannabis operations should strive to rely on 100% renewable energy such as wind, solar, or, in a few circumstances, micro hydropower production.

1. What is the source of power used?

- Conventional
- Wind
- Solar
- Hydro
- Generator
- Other: _____

2. Estimated percent renewable energy:

- 0-25% (1 pts) 25-50% (2 pts) 50-75% (3pts) 75-100% (4pt)

Water – Sources of water used for irrigating cannabis should be sustainable. If the water source is groundwater, a proximity analysis and well draw down calculator (available upon request with Upper Salinas – Las Tablas RCD) should be conducted to determine how to minimize groundwater impacts. If the source is from surface-water, withdrawals should be limited to wet months (January to April). Surface-water pumps will be screened with openings no greater than 3/32” (i.e., small enough to exclude small fish) and screen diameter must be large enough the suction pressure is invisible. National Marine Fisheries Service has guidelines for surface-water screens

(http://www.westcoast.fisheries.noaa.gov/publications/hydropower/southwest_region_1997_fish_screen_design_criteria.pdf). Rain water harvest and grey water are other sources of water that can be used for irrigation. If these systems are used, they should be designed, engineered, and operated to be used during wet winter months and avoid impacts to neighboring waterbodies. Permits for water diversions and storage will be obtained through the appropriate regulatory agency depending upon the point of diversion and/or storage capabilities.

Noise – Operations should be cognizant of noise levels from heavy equipment, traffic, fans, heaters, pumps, etc. Also, due to the nature of cannabis operations, some may require ongoing, around the clock operation to ensure plant vitality and vigor. This may pose a problem in relation to adjoining property owners. It is recommended each operation abide by the local noise ordinance.

1. Are measures taken to reduce noise?

- Yes (2 pts) No

List measures to reduce noise levels on the property.

Spacing – The spacing between plants, both during the growing season as well as curation, should be adequate to prohibit cross contamination, improve pest management, and canopy microclimate.

- 1. Was the spacing chosen based on soil type, rootstock, terrain, variety, and clone?
 Yes (2 pts) No

- 2. Was the trellis and training system designed to optimize canopy microclimate, sunlight exposure (if applicable), and minimize disease and insect pressure?
 Yes (2 pts) No

If yes, provide a written description of your trellis system(s) and how it addresses these issues.

Odor – Odor can be problematic for certain operations, especially depending on varietal of cannabis grown and proximity to other properties. Facilities should develop and adopt an odor control plan based on best management practices to reduce odors from various sources.

- 1. Does the operation have an odor control plan?
 Yes (2 pts) No

<p><i>Overall ranking score for planting setup:</i></p> <p><i>_____ Points out of 12 Points Possible</i></p>

OPERATION AND MAINTENANCE PRACTICES

Crop Water Use

Each operation will vary in relation to crop water use. For the purposes of this document, the water use for cannabis has been divided into four (4) main categories: indoor, greenhouse, high hoop, and outdoor. For clarification, indoor is considered to be an enclosed structure where all environmental and climatic factors such as light, temperature, and pests can be controlled. Greenhouse and high hoop are similar with the variance that greenhouse is enclosed whereas high hoop has open corridors under the structure, while outdoor is does not have a protective cover over the crop.

Crop Water Requirement

- Indoor
- Greenhouse
- High hoop
- Outdoor

What are the maximum annual acre-feet estimated crop water requirements for the various growing techniques?

- Indoor: _____ AF
- Greenhouse: _____ AF
- High hoop: _____ AF
- Outdoor: _____ AF

Growing Season

1. What is the annual average length of time for growing cannabis on your property?

- 0-3 months 3-6 months 6-9 months >9 months

Harvest numbers/frequency

1. What is the annual number of harvests?

- 1 2 3 >3

Source of water (i.e. surface, roof runoff, groundwater). Circle all that apply.

- Surface
- Groundwater
- Rain Harvest
- Greywater
- Natural precipitation
- Other: _____

Irrigation practice – flood, hand, sprinkler, drip, or dryland. Circle all that apply.

- Flood
- Sprinkler
- Drip

- Hand
- Dryland
- Other: _____

Water quality – dissolved oxygen, pH, salinity, metals, salts, etc.

1. Is a water quality analysis conducted more than every five years?

- Yes (2 pts) No

2. Frequency of water quality analysis:

- Annually (3 pts)
 Every 3 years (1 pt)
 No

If yes, attach analysis results.

3. Are any measures being taken to address water quality issues?

- Yes (2 pts) No

If yes, list/describe what measures are being taken to address water quality:

4. What are the water quality measures of concern? List (e.g. high pH, metals, nitrogen, etc.):

Stock – seed, clone, teen, early vegetative

1. What is the base stock type for the operation? _____
2. Prior to receipt of plant material, were tests for viruses conducted?

Yes (2 pts) No

If yes, attach virus test.

Overall ranking score for crop water use:

 Points out of 9 Points Possible

Soil & Sediment Erosion Control

Each facility will need to develop a plan to address soil instability and erosion. The site should be managed to reduce soil erosion and sedimentation pre- and post-installation, including long-term management and operation. There are several approaches to stabilizing soil after disturbance from installing an operation such as cover crop, mulching, filter strips, and soil stabilizers. Due to the fact not all practices will be employed at every operation, if the area is stabilized from implementation of one practice, then the other practices are not applicable.

Cover crop

1. Are there cover crops?

- Yes (2 pts) No NA (2 pts)

2. Are the cover crops composed of native vegetation and in good condition?

- Yes (2 pts) No NA (2 pts)

3. Estimated percent cover:

- 75-100% (4 pts) 50-75% (3pts) 25-50% (2 pts) 0-25% (1 pt)

Mulch

1. Has mulch been applied to reduce soil erosion?

- Yes (2 pts) No NA (2 pts)

2. Is there a minimum of 2-4” applied around the facilities, including plants?

- Yes (2 pts) No NA (2 pts)

3. Does the area have adequate amount of mulch surrounding the operation to prevent soil erosion or cover crops?

- Yes (2 pts) No NA (2 pts)

4. Does the operation have an erosion control plan and/or BMPs installed?

- Yes (2 pts) No

List erosion control BMPs in the plan or installed:

Filter strips

1. Are there filter strips installed?

- Yes (2 pts) No

2. If so, are the filter strips adequately reducing pollutants to watercourses?

- Yes (2 pts) No

Soil stabilizers

1. Have soil stabilizers been applied?

- Yes (2 pts) No NA (2 pts)

If yes, list/describe type of soil stabilizer:

2. How frequently are soil stabilizers applied?

- 0-3 months 3-6 months 6-12 months >12 months

<p><i>Overall ranking score for soil and sediment control measures:</i></p> <p><u> </u> <i>Points out of 22 Points Possible</i></p>
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Waste Management

Each facility will need to have adequate processes for dealing with byproducts and waste from crop production. The purpose of having a waste management plan, procedure, and practices is to minimize or eliminate pollutant discharge into watercourses from stockpiling. Waste can vary, depending on the operation, and include, but not limited to, organic materials, metal, pipes, soil, food containers and beverages, timber/lumber, and metal scraps. It is recommended for a designated employee to oversee and enforce proper solid waste procedures and practices.

Collection facility/process

1. Is there a designated waste management employee?

Yes (2 pts) No

2. Does the facility have adequate storage of waste materials?

Yes (2 pts) No

3. Are there preventive stormwater measures installed around solid waste such as berms, dikes, biodegradable erosion control BMPs, etc.?

Yes (2 pts) No

4. Are organic and inorganic waste kept separate?

Yes (2 pts) No

Composting

1. Does the operation have on-site composting of organic waste material(s)?

Yes (2 pts) No

2. Is compost coming from off-site (imported)?

Yes No

If yes, what percentage of compost is from off-site?

75-100% (1 pt)

50-75% (2pts)

25-50% (3 pts)

0-25% (4pts)

3. Is previous year's (season's) compost being used on-site?

Yes (2 pts) No

4. If yes, are any inorganic supplements added to the compost?

Yes No (2 pts)

Disposal area

1. Are there sufficient numbers of solid waste storage areas?

Yes (2 pts) No

2. If there are solid waste storage areas, are they located a minimum of 50 ft away from any drainage areas or watercourses?

Yes (2 pts) No

3. Are potentially hazardous wastes segregated from non-hazardous?

Yes (2 pts) No

Overall ranking score for waste management practice:

 Points out of 24 Points Possible

Soil Management

Soil management involves the physical and chemical parameters necessary to provide adequate soil moisture and macro- and micro-nutrients to plant growth. In addition, management of soil includes practices of incorporating materials either on-site or offsite to ensure adequate nutrient levels.

Composting

1. Does the facility incorporate composting as a soil management practice?

Yes (2 pts) No

2. What is the frequency of composting applied?

Monthly (4 pts) Quarterly (3 pts) Bi-annually (2 pts) Annually (1 pt)

3. Is the compost tested for organic content?

Yes (2 pts) No

Organic and inorganic compounds

1. What percentage of organic to inorganic compounds are in the soil?

75-100% (4pts) 50-75% (3pts) 25-50% (2 pts) 0-25% (1pt)

If inorganic compounds are used, provide a list of which are used in the soil:

Overall ranking score for soil management practices:

 Points out of 12 Points Possible

Materials Storage

Materials used in the production of cannabis must be documented and stored to prevent accidents or spills. Each facility should have a designated materials storage container with an emergency evacuation and spill plan in place.

Materials Management Plan – Each facility should have a management plan and strategy for dealing with materials both hazardous and non-hazardous to prevent accidental spills and to address emergency situations. Not applicable should be noted only if a facility has no hazardous or non-hazardous materials to store such as fertilizers, pesticides, or herbicides.

Location – The location of a materials storage facility is important for minimizing risks and preventing contamination into groundwater or surface waterbodies in the case of an accident.

1. Is there a designated storage facility on site?
 Yes (2 pts) No NA (2 pts)
2. If yes, is the facility located at a distance sufficient to prevent contamination to surface water bodies?
 Yes (2 pts) No NA (2 pts)

Storage

1. Are there control measures to prevent spills (e.g. spill proof containers, catch basin, etc.)?
 Yes (2 pts) No NA (2 pts)
2. Are the storage containers used appropriate for the materials stored in them?
 Yes (2 pts) No NA (2 pts)
3. Is there a secondary containment system or overfill prevention system in place?
 Yes (2 pts) No NA (2 pts)

Listing of materials

1. Are the appropriate material safety data sheets (MSDS) posted or readily available?
 Yes (2 pts) No NA (2 pts)

Emergency spill and evacuation plan

1. In the event of a spill or emergency, is there a plan in place to address these issues?

Yes (2 pts) No NA (2 pts)

2. If yes, when was the plan recently updated?

0-3 months (4 pts) 3-6 months (3 pts) 6-12 months (2 pts) >12 months (1pt)

NA (4 pts)

3. Are absorbent pads, socks, or blankets readily available in the case of a spill or emergency?

Yes (2 pts) No NA (2 pts)

4. Have all employees been trained in proper emergency spill prevention procedures?

Yes (2 pts) No NA (2 pts)

5. Is there at least one person present at all times with skills and knowledge to implement an emergency prevention spill plan?

Yes (2 pts) No NA (2 pts)

*Overall ranking score for materials storage management and practices
cumulative score:*

_____ *Points out of 24 Points Possible*

Pest Management

Pest management and pest control is the focus for sustainable cannabis production. The operator needs to account for many issues when deciding when and how to manage or control a pest such as pest life stage, abundance of beneficial insects, economics, and injury to existing crops. Use of proper equipment (mechanical vs. chemical) for management is also another important factor to consider. Each facility should strive to have low-input practices with standards that are adaptable and flexible as new information and techniques become available.

Identification – Identification of potential pests is the first step to management and control. Each facility should have expertise and current knowledge of potential pests and be able to readily identify nuisance pests from beneficial insects, plants, etc.

1. Are plants surveyed on a regular basis for identification and accounting of pests?

Yes (2 pts) No

If yes, how frequently?

Daily (4 pts) Weekly (3 pts) Monthly (2 pts) Annually (1 pt)

2. Have any pests identified been reported to California Department of Food and Agriculture?

Yes (3 pts) No

Control – If pests are present at the site, a pest management control plan should be implemented to minimize, control, and possibly eradicate them. The plan can be a living document which adjusts according to the season, pest present, life stage of the plant, abundance of the pest present on site.

1. Are chemical treatments applied?

Yes No (2 pts)

If yes, are the chemical treatments (pesticides, fungicides, etc.) on approved list (*i.e.* Clean Green Certification)?

Yes (2 pts) No NA (2 pts)

Attach documentation of all chemical treatments applied.

2. Are treatments applied to the smallest area possible to achieve control (spot spray vs. overhead)?

Yes (2 pts) No NA (2 pts)

3. Are there adequate sanitation practices employed to prevent spreading of pests, weeds, disease?

Yes (2pts) No

If yes, what is the frequency of application?

Daily Weekly Monthly Yearly

Overall ranking score for pest management and practices:

 Points out of 17 Points Possible

WORKFORCE

Social Equity and Labor Management

In order for cannabis production facilities to be sustainable, they must provide a safe and fair working environment for their employees and interact successfully with the surrounding community. A heavy reliance on human labor to conduct various stages of cannabis production requires a safe and fair work environment. Providing fair compensation, benefits, and promoting a positive work environment should be the goal of each facility.

Requirements

1. Is there an employee handbook with the appropriate human resources policies (harassment, salary, benefits and incentives, safety policy procedures and grievances, etc.)?

Yes (2 pts) No

2. Is there a Job Hazard Analysis (JHA) provided to employees and kept on site?

Yes (2 pts) No

3. Does the operation pay competitive salaries for the region?

Yes (2 pts) No

If yes, provide documentation of average salaries per job category for the region.

4. Are any benefits (health, dental, vision, life) contributions made on behalf of the employer?

Yes (2pts) No

If yes, what percentage of medical insurance premium is covered by the employer?

100% (4 pts) 75% (3 pts) 50% (2 pts) <50% (1 pt)

5. Is there a formal process for performance evaluations?

Yes (2 pts) No

6. Is there a formal process for grievances and disciplinary action?

Yes (2 pts) No

Overall ranking score for social equity and labor management and practices:

Points out of 16 Points Possible

For further information, Clean Green (www.cleangreencert.org) has valuable information on cannabis production BMPs, including a list of products. Clean Green Certified Program provides a list of products that are used and have been reviewed for Clean Green certification (available at:

<https://www.cleangreencert.org/wp-content/uploads/2016/10/MasterCGReviewedInputList-Revised-8-5-16.pdf>). This list does not include all products that may be used, but a sample of those that have been reviewed.

For products not on this list, the following resources are useful in determining the best products and ingredients that will assist you in developing a sustainable crop operation:

- 🌐 Organic Materials Review Institute (OMRI), www.omri.org (the generic search tool is very helpful also).
- 🌐 Washington State Department of Agriculture (WSDA).
<http://agr.wa.gov/FoodAnimal/Organic/MaterialsLists.aspx>
- 🌐 National List of Allowed and Prohibited Substances
www.ams.usda.gov/NOP/NOP/standards/ListReg.html
- 🌐 CDFA Fertilizer Product Database – Organic Input Materials (OIM)
https://www.cdfa.ca.gov/is/fldrs/fertilizer_OIM.html
- 🌐 ATTRA has a new Ecological Pest Management, on-line pest management tool for farmers. This database highlights reduced risk materials that can be integrated with ecological pest management strategies. It can be found at the following link:
http://www.attra.org/attra-pub/biorationals/biorationals_main_srch.php

Attached a list of products **not** included in any of the aforementioned resources.

Land Use & Conservation Measures		
Planting Setup		
Operation & Maintenance		
Soil & Sediment Control		
Waste Management		
Soil Management		
Materials Storage		
Pest Management		
Social Equity & Labor Management		
TOTAL:		
POINTS POSSIBLE:	173	173
*RANK:		

Score	Rank
173-165	AA
164-156	A
155-138	B
137-121	C
120-103	D
<102	Cannot be considered for this program

Self Assessment conducted on: ___ / ___ /20 ___

Self Assessment conducted by: _____

Print name

Signature

Verification conducted on: ___ / ___ /20 ___

Verification conducted by: _____

Print name, Title

Signature

Agency Contact Information

Army Corps of Engineers
San Francisco District
1455 Market Street
San Francisco, CA 94103-1398
415.503.6804

Los Angeles, CA 90017
Phone: (213) 452-3333
San Francisco District
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California Department of Fish and Wildlife
Central Region (Region 4)
1234 East Shaw Avenue
Fresno, CA 93710
559.243.4593
R4LSA@wildlife.ca.gov

Central Coast Regional Water Quality Control Board
895 Aerovista Place, Suite 101
San Luis Obispo, CA. 93401-7906
805.549.3147
centralcoast@waterboards.ca.gov

San Luis Obispo County Planning Department
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San Luis Obispo, CA 93401
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CalFIRE
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San Luis Obispo, CA 93405
805.543.4244

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