

Dear Assistant Clerk of the Board,

We are submitting the attached letter to be read into the official record at the next Board of Supervisors meeting on Tuesday, June 8th, 2021.

We here at Lake County Development Co. currently have four applications in process awaiting Early Activation and Major Use Permits; applications UP 20-95 Artemis Farmz, UP 20-96 Highland Farms, UP 20-88 Wildcat Farmz, and UP 20-97 Alchemy 29.

As a company, we aim to be as sustainable as possible and preserve water and other valuable finite resources. As water consumption has become a growing concern Statewide, we have been directly focused on this issue. While researching the ordinance, we found the definitions surrounding hoop houses to be ambiguous. There is also confusion among planners on how hoop houses should be taxed when not using light deprivation.

We would like to assist in clarifying the agricultural benefits, which have been proven to save up to 25%-30% in water consumption. Typical hoop houses such as those use for raspberries usually fall under an agricultural exemption in most counties, and farmers can implement them for around twelve thousand dollars an acre. However, being that Lake County has defined them as “commercial structures,” making them cost-prohibitive for farmers to implement because they then need structural engineering and the hoop house companies then need to modify and supply plans for items that are typically made to order and accepted statewide.

We would like the County Supervisors and Commissioners to take a closer look at the variations of Hoop Houses, specifically those that are not implementing light deprivation or mechanical equipment to allow for more sustainable, affordable practices amongst farmers here in Lake County.

Planning Supervisors

June 7, 2021

Page 2

I invite you to take a look at the following white paper written by Roger Kern, Ph.D., outlining the agricultural benefits and water reduction through the use of hoop houses.

Thank you in advance for your consideration,

Sjoerd Broeks, COO
Autumn Karcey, CEO
371 Lakeport Blvd #174
Lakeport, CA
(530) 379-8588
autumn@lakecodevelopment.com
sjoerd@lakecodevelopment.com

June 7, 2021

Johanna Peelen
Assistant Clerk of the Board
Lake County Board of Supervisors
255 North Forbes St.
Lakeport, CA 95453

Dear Planning Supervisors:

In the interest of helping Lake County in its conversation and determination concerning the use of hoop houses for cannabis cultivation, we have worked closely with the principals of Agate Biosciences LLC. Dr. Roger Kern, President, Agate Biosciences, was our consultant and he has written a short report comparing the relevant issues of open field agriculture, hoop houses, and greenhouses for us. We forward his report to you with this letter to assist in building knowledge and consensus at the local level on the use of hoop houses in Lake County.

Dr. Roger Kern received his PhD in microbiology from the Plant Growth Laboratory at the University of California at Davis. Over the past 10 years his focus has been on Controlled Environment Agriculture (CEA) of vegetables as well as cannabis. He has taught on the subject at the college level and is currently a collaborator with the University of Arizona's Controlled Environment Agriculture Center (CEAC).

We kindly submit here the report from Agate Biosciences LLC, Dr. Roger Kern:

Introduction

Lake County provides cannabis businesses with a one-of-a-kind environment and opportunity that unites government entities with the unique environmental and regulatory needs of cannabis businesses. This partnership of government and business will provide substantive tax revenue to aid the county and income for the businesses to provide good-paying jobs for Lake County residents. These tax funds will reinvigorate the County infrastructure, help its people improve their quality of life, and renew the natural beauty that has suffered so much due to the wildfires of the past ten years. The partnership of Lake County and the cannabis industry can flourish and be nurtured to provide greater benefits for both. We propose working together to create a helpful environment that will ensure that the cannabis industry is able to conduct work with the best agricultural practices and provide Lake County with a new industry that will provide revenue and a positive forward- looking partnership in alignment with the County's Vision 2028.

As stated in Vision 2028, Lake County foresees a future that promotes the well-being and economic resilience of every Lake County resident through focused economic development and fostering a business-friendly environment. We believe in the Vision for the future of Lake County, and we are designing our business to match the goals by Vision 2028 for Lake County.

In this short paper, we compare the use of traditional open field agriculture, hoop houses, and greenhouses for cannabis cultivation. We offer this with the perspective that hoop houses are only one small step from open field agriculture and provide many benefits in alignment with Vision 2028. As simple structures that are not permanent, they can be excluded from building permit rules while providing an attractive, natural agricultural beauty to the cultivated land. These simple temporary structures can be moved to desired locations in the agricultural setting and provide a host of environmental and economic benefits for Lake County. The natural materials and coloration will make the crop less visible to the public and help alleviate concerns over altering the natural beauty of the area. We support the use of hoop houses due to their simplicity, value to the environment, and ability to protect the crop from the potential negative impacts of harsh weather. We suggest that hoop houses should be considered as a separate and unique structure, unique and different from commercial use, exempting them from the building permit rules, as they are exempt throughout the other counties of California. Hoop houses are actively promoted by the United States Department of Agriculture, Natural Resources Conservation Service (NRCS)s. The NRCS supports their use to increase crop productivity, conserve water, and minimize environmental impact. In addition, being one small step from open field agriculture, owing to the lack of any electrical or mechanical additions, the hoop house cultivation sites should be taxed at the open field rate and not at a rate used for greenhouses which are permanent building structures as defined by MAUCRSA Chapter (5) 26050. In this paper, we will

discuss each of the cultivation approaches and show that hoop houses are preferred in many locations and are more like open field cultivation than they are to greenhouse cultivation.

Lake County Regulations

When reviewing the current regulations of Lake County, we find in Zoning Ordinance the definitions for Hoop House and Greenhouse. Restated here:

“Hoop-house: *An unheated outdoor enclosure used for the purpose of growing and/or for protecting seedlings and plants from cold weather but not containing any mechanical or electrical systems or storage of any items. Typically, a hoop-house is of semi-circular design made of, but not limited to, piping or other material covered with translucent material.”* [Article 68 \(h\) 9, in the Lake County Zoning Ordinance](#)

And

“Greenhouse (Cannabis): *An outdoor structure, heated or unheated, constructed primarily of glass, 6 mil film, polycarbonate, or other rigid translucent material, which is devoted to the cultivation of cannabis.”* [Article 68 \(g\) 5, in the Lake County Zoning Ordinance](#)

According to the current regulations, both types of structures require the same type of commercial building permit and are subject to the same cannabis cultivation taxation rule.

After working in the legal cannabis cultivation industry since its inception, we have gained many years of experience with both types of cultivation environments: Hoop Houses and Greenhouses. It is important to understand the differences, so that appropriate rules are enacted for each type of environment.

Types of Cannabis Cultivation

There are three types of cultivation approaches that can be developed in Lake County. The three types are:

Open Field

Open field cultivation is the simplest and most historical type of cultivation. It is simply planting and growing cannabis in an open field. It is the least capital intensive and lowest yield method of cannabis cultivation. In general, outdoor cultivation provides one crop per year. This may differ if the cultivator plants a type of cannabis called “auto-flower” which completes its growth and lifecycle in a shorter time than traditional cannabis. Of course, the crops are subject to the full effects of the weather including variation of sunlight, clouds, rain, wind, dust, smoke, temperature, and humidity. Harsh weather conditions may cause considerable damage to the crop and cause unfortunate financial losses. This exposure to the extremes of the environment has caused

cultivators to consider a method just one step above open field cultivation, the hoop house.

Hoop House

A hoop house is most closely related to open field cultivation because it is just a covering that shields the crop from the harshest weather. Hoop houses are temporary, non-permanent structures that are easily put up or taken down and moved to the desired location. There are no lights, no electrical fixtures, no controls of temperature, no mechanical systems, nor humidity control, for example. A hoop house looks like a Quonset hut with a polyethylene or shade cloth fabric roof, but with no side walls. It provides some protection of the crop from the most intense types of weather but has no active controls to mitigate the environmental effects. With no walls and only a light film or shade fabric roof structure, the Sun's light is transmitted through to the crop while some of the heat is trapped in the roof structure to help keep the plants warm when the weather is cool. A hoop house's primary purpose is to moderately extend the growing season by keeping the crop a little warmer due to the heat trapping in the roof. It reduces the risk of frost damage in the early spring as well as the late fall. In addition, the partial shade provided by the roof material reduces the rate of water loss from the plant (called transpiration). This means that the hoop house will help with water conservation with the potential for a 25% reduction in water use. Unlike greenhouses, hoop houses have no capability to alter the light levels within the hoop house using curtains or light deprivation (black out) capabilities. Their passive and temporary nature makes them ideal for preserving the local natural resources and views. When a greater amount of environmental control is desired, a cultivator could consider increasing the level of investment by building a full greenhouse as a permanent structure on the property.

Green House

A modern greenhouse is the top-of-the-line in environmental control to create just the right conditions for the plants. It is permanent structure with all the electrical and mechanical systems expected of a building that allows full control of the internal environment. While older versions of greenhouses were made of glass, newer models are made of exclusive polycarbonates, films, and polymers. In all cases, the materials are optimized to allow diffuse sunlight into the building through the roof; the sidewalls may be made of the same materials or darker materials, depending on the design. A greenhouse is a fully-environmentally-controlled indoor environment that lets the sunlight in and also allows for supplemental artificial lighting to help ensure the proper light intensity for the crop. In addition, the greenhouse can be darkened with "light deprivation" curtains to provide an earlier "nighttime" for the plants. A greenhouse is

the most capital-intensive option but produces the highest annual yield because a few harvests of crops can be completed throughout the year. The supplemental lighting and the light deprivation curtains cause the plant to “think” it is a different season than it really is outdoors. The cultivator is not limited to one crop per year but can grow several sequential crops due to environmental control. With light intensity control through the supplemental lighting and light deprivation, as needed, heating, air conditioning, humidity control and more, a greenhouse permits year-round cultivation of crops. The plants never know if it is actually summer or winter outside because the cultivator moderates and controls the internal environment to be exactly what the crop needs it to be to provide the desired harvest at the desired time. With optimal control of temperature, humidity, soil mixture, nutrients and lighting several crops can be produced each year.

Key Attributes of Cultivation Approaches

Open Field

1. Simplest form of cannabis agriculture.
2. No methods used to shield the crop of the environment.

Hoop House

1. Temporary structure.
2. Quonset hut-like structure of metal pipes to hold up a light fabric roof, with no side walls.
3. No electrical or mechanical systems to aid in environmental control.
4. Crop is slightly shielded from the harshest cold and heat due to the fabric roof.
5. Helps with water conservation with a potential for 25% reduction in water use.
6. Similar crop timeline as open field production with 1-2 crops per year maximum.

Greenhouse

1. Permanent building.
2. Full electrical and mechanical systems for environmental control.
3. Cultivator controls the environment for the crop.
4. Crop is shielded from all environmental harm because it is inside the building.
5. Provides maximum production and yield due to the environmental control.
6. Blackout/light deprivation capability for 5 + crops per year.

Benefits of Hoop Houses

1. Environmental sustainability due to no use of electricity.
2. Recycling of materials as the temporary structures are moved and set up multiple times, as needed.
3. No water run off diversion during winter months due to the hoop house coverings being removed for the season.
4. No negative effects of air pollution or greenhouse gas emissions.

5. Improved worker environment due to shade while working on the crop.
6. Significant reduction of water consumption by up to 25% because plants do not “give up” as much internal water through transpiration due to shade and cooler temperatures.
7. Increase long-term property values because the structures can be easily removed with no environmental impact.
8. Reduced exposure for crops to dust and airborne particles.

Recommendations

1. Designate a Hoop House as entirely separate type of cultivation approach; it is unique and different from Open Field and Greenhouse approaches.
2. Change the local standard to allow for the normal 12-foot height for hoop houses, as is standard in agriculture in other California counties.
3. Following the custom of other California counties: do not designate a Hoop House as a permanent building when related to zoning and taxation.
4. For Lake County, designate Hoop Houses as temporary structures that do not need a building permit and designate that the cultivation shall be taxed as an outdoor cultivation approach.

We appreciate the opportunity to contribute to the discussion concerning the use of hoop houses in Lake County. We look forward to ongoing discussions on this topic to help create a successful program that will aid all residents across the region.

Sincerely,

Sjoerd Broeks, COO
Autumn Karcey, CEO
Lake County Development Co.

Representing:

Artemis Farmz UP 20-95
Highland Farms UP 20-96
Alchemy 29 UP 20-97
Wildcat Farmz 20-88



(Photo: Inside of Hoop House)