Permaculture Design

“Meeting Human Needs While Increasing Ecological Health.”

“The Post-Modern Synthesis of All Wise Human Behavior.”

VISION  DESIGN  NETWORK
Permaculture Ethics

“Earth Care”

“Fair Share”

“People Care”
Permaculture Design Principles

Care for the Earth

- Creatively Use & Respond to Change
  (envision possibilities and intervene in effective ways)
- Use Edges; Value the Marginal
  (important things happen at the intersections)
- Use & Value Diversity
  (diversity leads to greater resilience)
- Use Small, Slow Solutions
  (local resources & responses, manageable scale)

Fair Share

- Integrate
  (capitalize on how things work together)
- Design from Pattern to Detail
  (observe natural/social patterns and apply them to design)

Care for People

- Observe and Interact
  (pay attention)
- Catch and Store Energy
  (harvest while it's abundant)
- Obtain a Yield
  (make sure you're getting valuable results)

- Use & Value Renewables
  (reduce dependency on scarce resources)
- Self-Regulate; Accept Feedback
  (be open to modify dysfunctional behaviours)

Produce No Waste
Permaculture ‘Flower’
Permaculture Design System Evolution

Land & Nature Stewardship
- Integrated aquaculture
- Agroforestry & nature-based forestry
- Keyline water harvesting
- Holistic Rangeland Management
- Native title
- Co-operatives / Body corporates
- Conflict resolution

Built Environment
- Bio-intensive gardening
- Forest gardening
- Wild harvesting
- Organic & BD agriculture
- Seed saving
- Water harvesting & reuse
- Biotechnology
- Owner-building
- Passive solar design
- Charcoal & wood gasification

Land Tenure & Community
- Microhydro
- Hand tools
- Bicycle transport

Finances & Economics
- Eco-villages / cohousing
- Emergy accounting
- Ethical Investment
- Community Supported Agriculture
- Fair Trade Products
- WWOOFing
- LETS
- Spirit of place
- Dying with dignity
- Yoga & other body/mind/spirit disciplines

Culture & Education
- Home & Steiner education
- Reading Landscapes
- Participatory arts & music
- Social Ecology & Action Research
- Holistic medicine
- Home birth / Breastfeeding
- Preventative health
Long-Term Comprehension

Long-Term Cooperation

Foresight: Long-Term Planning
Permaculture Design Process

- Goals Articulation

Our Farms are:

- Carbon Negative
- Climate Resilient
- Decreasingly Dependent on External Energy and Fossil-Fuel Derived Inputs
- Contributing to Resilient Land-based Local Economies
PERMA-CANNA-CULTURE

HEALING OUR FARMS AND THE EARTH WITH CANNABIS MEDICINE

UVM HEMP CONFERENCE FEBRUARY 8, 2019

REspect.ROCK.ORG

DESIGN AND EDUCATION FOR ECOLOGICAL CULTURE
Willow Crossing Farm

PROSPECT ROCK PERMACULTURE
DESIGN AND EDUCATION FOR ECOLOGICAL CULTURE

PROSPECTROCK.ORG
**Willow Crossing Farm**
Conceptual Design
Copenhagen Brainstorm
March 3, 2011

Key:
- Riparian Buffer, Wildlife Corridors, CREP, (Nut and Sugarbush)
- Ponds, Wetlands, Wildlife Habitat
- Nut Production (Hazels, Chestnuts, Juglans, and Pine Nuts)
- Existing Production (Vegetables, Herbs, Fruit, and Berries)
- Vines
- Proposed Vegetable, Herb, and Berry Expansion
- Proposed Rice Paddies
- Proposed Farm Enterprise Infrastructure (Barn, Greenhouse, Dining, Farmstand)
- Proposed YURT SITE!

Rail Trail
VT Route 15
Carbon Farming
Capture carbon on your farm to enhance productivity, increase profitability, and combat climate change.
MEDICINE
CURE CANCER

NUTRITION
FEED PEOPLE

CONSTRUCTION
BUILD HOUSES

MORE
PAPER
PER VOLUME

HIGH QUALITY
TEXTILES

BIO-DEGRADABLE
PLASTICS

LIVESTOCK
BEDDING

LIVESTOCK
FEED

HEALTHY
BODY & SKIN CARE
PRODUCTS

HAPPY ANIMALS

You don’t have to be stoned to appreciate the beauty of Cannabis.
One of Henry Ford’s first cars ran entirely on Hemp ethanol. The body was also constructed from Hemp plastic, which was 10X stronger than steel.

Unfortunately, Hemp was outlawed due to the damaging effect it would have on many powerful industries at that time; including the oil, plastics & paper industries.

"Why use up the forest which were centuries in the making and the mines which required ages to lay down, if we can get the equivalent of forest and mineral products in the annual growth of the fields?"

— Henry Ford —
CANNABIS AND THE HUMAN CB RECEPTORS
(endocannabinoid system)

Our body naturally has an endocannabinoid system (CB receptors). Cannabinoids from the cannabis plant bind to these receptors in various ways to provide medicinal relief.

**CBD**
- Not psychoactive. However, can be used as a therapy for the other cannabinoids below them to function more efficiently.
- Anti-psychotic: stress and anxiety reduction.
- Anti-inflammatory: pain and swelling.
- Antioxidant: slows brain aging.
- Antimicrobial: bacterial and fungal.
- Antidepressant: mood and anxiety.
- Anticonvulsant: seizures.
- Antiemetic: nausea.
- Antinociceptive: pain relief.
- Anti-insomnia: sleep aid.
- Antidepressant: mood and anxiety.

**CBG**
- Anti-inflammation.
- Bone-strengthening.
- Anti-microbial.
- Associates with CB receptors.

**CBN**
- Mildly psychoactive.
- Sedative.
- Anticonvulsant.
- Anti-inflammatory.
- Anti-insomnia.
- Anti-anxiety.
- Anti-spasmodic.
- Primary metabolite of THC degradation (THC molecule broken down into CBN then to CB-1 & CB-2 receptors, with higher affinity).

**CBC**
- May contribute to the anti-cancer effects of cannabidiol.
- Anti-inflammatory.
- Anti-microbial.
- Anti-psychotic.

**CB-1**
- Mental Health
- Regulates mood and anxiety.
- Appetite regulation.
- Anti-fatigue.
- Anti-inflammation.

**CB-2**
- Body Health
- Regulates immune function.
- Inflammation.
- Pain.
- Appetite.

**THC-V**
- Potentially a neurotransmitter.
- Anti-inflammatory.
- Pain.
- Appetite.

**THC-9**
- Does not bind to CB-1 or CB-2 receptors.
- THC is helpful for not only smoking cannabis but also can be used topically, which is important for any sort of healing.

**CB1 receptors**
- Anti-proliferative: inhibition of cell growth.
- Inhibits tumor growth.
- Anti-angiogenesis: inhibition of new blood vessel formation.

**CB2 receptors**
- Modulates immune function.
- Regulates inflammation.
- Anti-inflammatory.
- Anti-microbial.
- Anti-neoplastic: inhibition of cancer cell growth.

**Psychoactives**
- THC-V: a potentially important neurotransmitter.
- CB1: mental health.
- CB2: body health.
- CBN: mild psychoactivity.
- CBG: anti-inflammatory.

**Antigenic**
- cannabis (leaf)
- brain
- CBD
- CB1
- CB2
- THC-V
- THC-9
- CBN
- CBG
- CBC

**Caduceus**
- Symbol of healing and medicine.
- Associated with the goddess of healing, Asclepius.
### Cannabinoid Education

**How can cannabinoids benefit you?**

- **THC (Tetrahydrocannabinol)**
  - Eases pain
  - Helps with relaxation
  - Reduces risk of nerve damage
  - Controls anxiety
  - Suppresses muscle spasms and convulsions
  - Controls certain cancers

- **CBD (Cannabidiol)**
  - Eases nausea
  - Slows inflammation
  - Fighting free radicals in the blood stream
  - Stimulates new growth in nerve tissue
  - Relieves chronic eye pressure and pain caused by glaucoma and other eye disorders

- **CBG (Cannabigerol)**
  - Acts as a sleep aid
  - Fights free radicals in the blood stream
  - Controls pain
  - Suppresses muscle spasms and convulsions

- **CBC (Cannabichromene)**
  - Reduces the risk of artery obstructions
  - Reduces the social isolation caused by THC
  - Eases nausea

- **THCU (Tetrahydrocannabinurin)**
  - Appetite suppressant
  - Controls anxiety

- **CBN (Cannabinol)**
  - Acts as a sleep aid
  - Fights free radicals in the blood stream
  - Controls pain

### Therapeutic Uses of Cannabinoids

#### Medical Benefits

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Dioecious

OIKOS (home) ~ Ecology ~ Economy
74% GROWTH IN 2014

U.S. legal cannabis market GREW from $1.5 BILLION in 2013 to $2.7 BILLION in 2014

courtesy of ArcView Market Research.

$2.7 BILLION U.S. CANNABIS SALES BY STATE IN 2014

- California: 49%
- Colorado: 30%
- Michigan: 4%
- Oregon: 2%
- Washington: 8%
- Arizona: 6%
- All Others: 1%

Source: ArcView Market Research (consumer and wholesale sales)
Understanding the differences between THC & CBD

The business of legal cannabis is rapidly growing on both medicinal and recreational fronts.

However, cannabis is a complex substance - and not every crop is created equally.