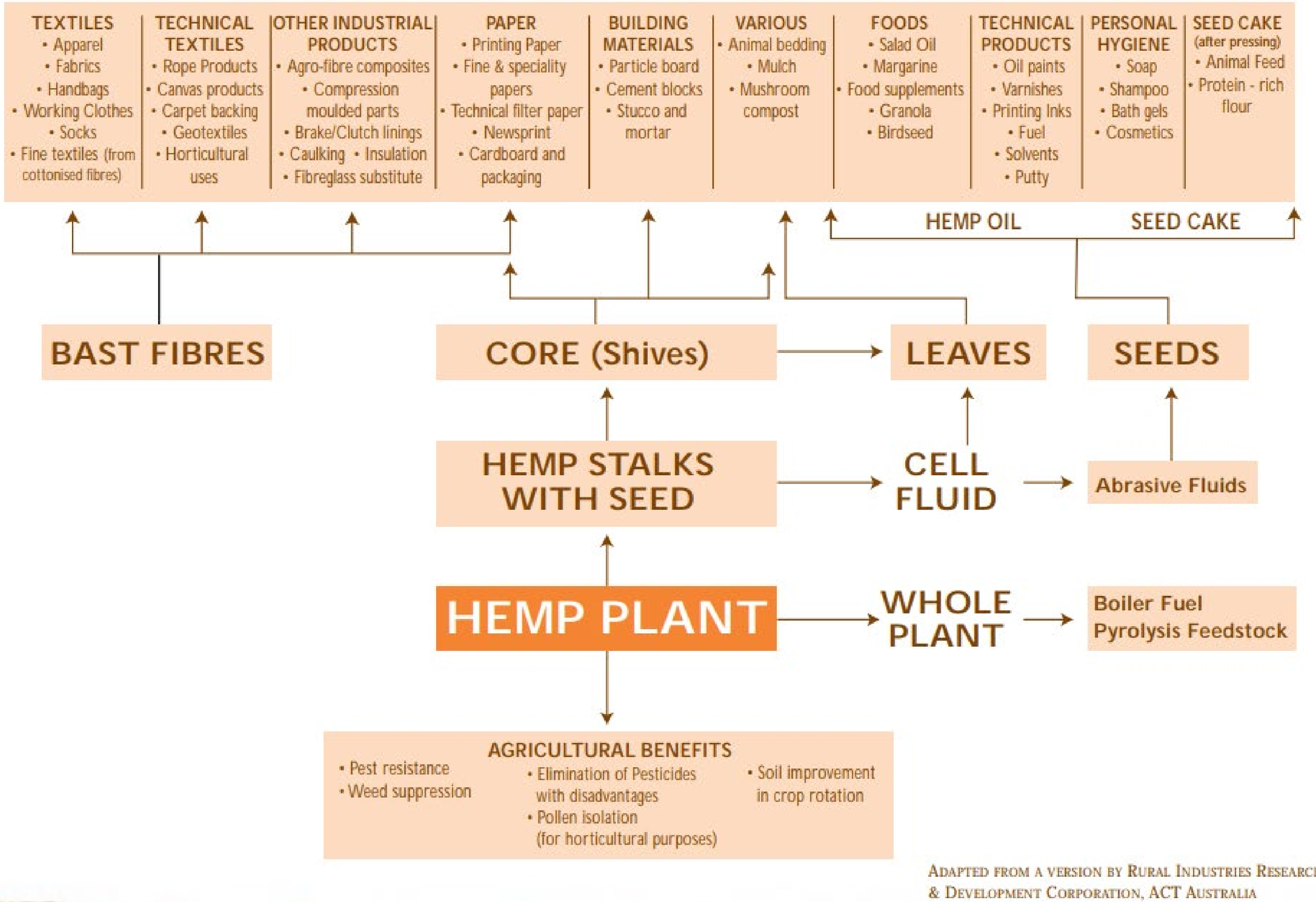



Adapted from a version by Rural Industries Research & Development Corporation, ACT Australia

THE NZHIA

# iHEMP

DISCOVERY & INVESTMENT

# TOUR 2022

FOOD • FIBRE • HEALTH

## HAMILTON

## Exploring hemp's economic and sustainability potential: New primary industry in Waikato

SPONSORED BY:

AGMARDT

NZHIA Food. Fibre. Health.

Wintec City Campus – The Long Room

Monday 4 July 2022

PRESENTED BY RICHARD BARGE

THE NZHIA
iHEMP
DISCOVERY & INVESTMENT
TOUR 2022
FOOD • FIBRE • HEALTH

# SPEAKERS

## RICHARD BARGE (NZHIA)

The NZHIA Chair presents a history of hemp in Aotearoa NZ and a new iHemp industry for Northern Waikato.

## BILL QUINN (ORGANICAG)

Opportunities and differences in production and marketing of iHemp.

## RACQUEL DUFFY (GLOBAL CANVAS)

How hemp can change the fashion world, and heal our whenua and moana.

## DR NICK MARSH (NEXT CORPORATION)

New Zealand Hemp export Driven Investor Re- port, unlocking the potential.

## KIM MURRELL (HILL LABORATORIES)

How Hill Laboratories has been supporting the Hemp Industry for compliance and soil fertility testing.

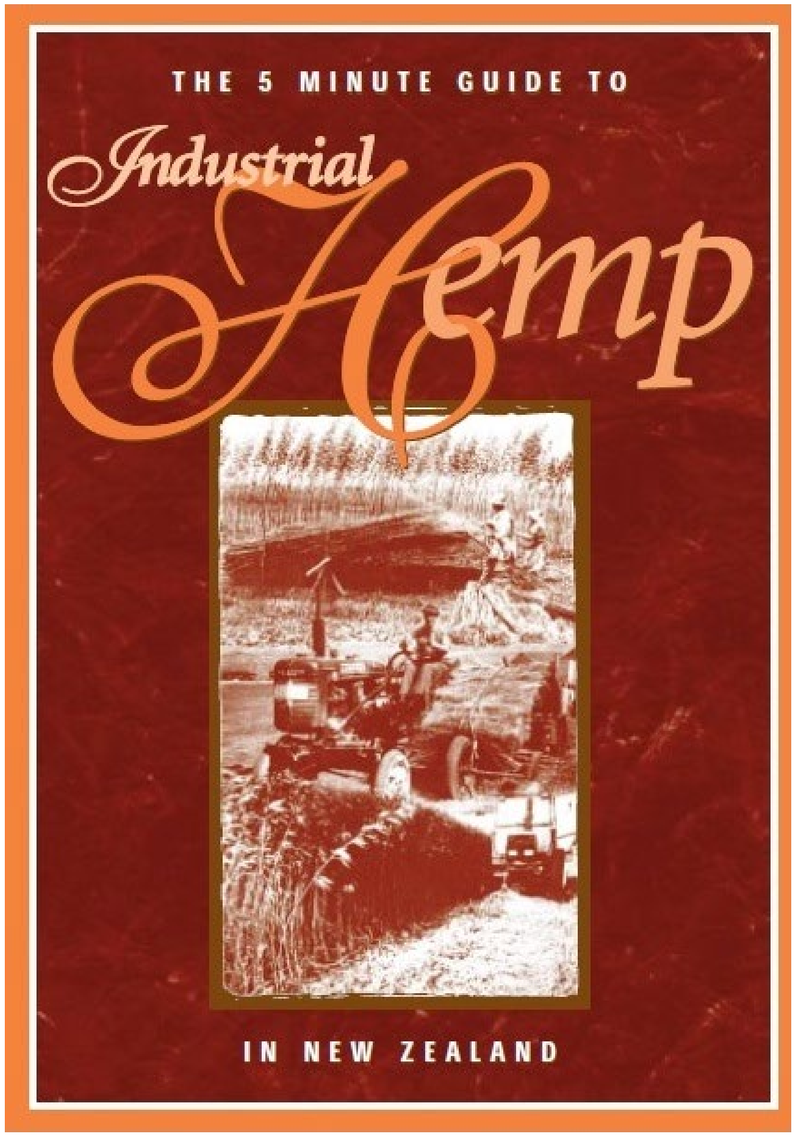
THE NZHIA
iHEMP
DISCOVERY & INVESTMENT
TOUR 2022
FOOD • FIBRE • HEALTH

# PROGRAM

- 7.30 Welcome
- 7.35 NZHIA — Introduction and History
- 8.00 Nick Marsh — Next Corporation
- 8.20 Kim Murrell — Hills Laboratories
- 8.40 Racquel Duffy — Global Canvas
- 9.00 Bill Quin — Organic AG
- 9.20 NZHIA — Business plans - Why
- 9.30 Panelists — Question & Answers
- Till Close

NZHIA
Food. Fibre. Health.

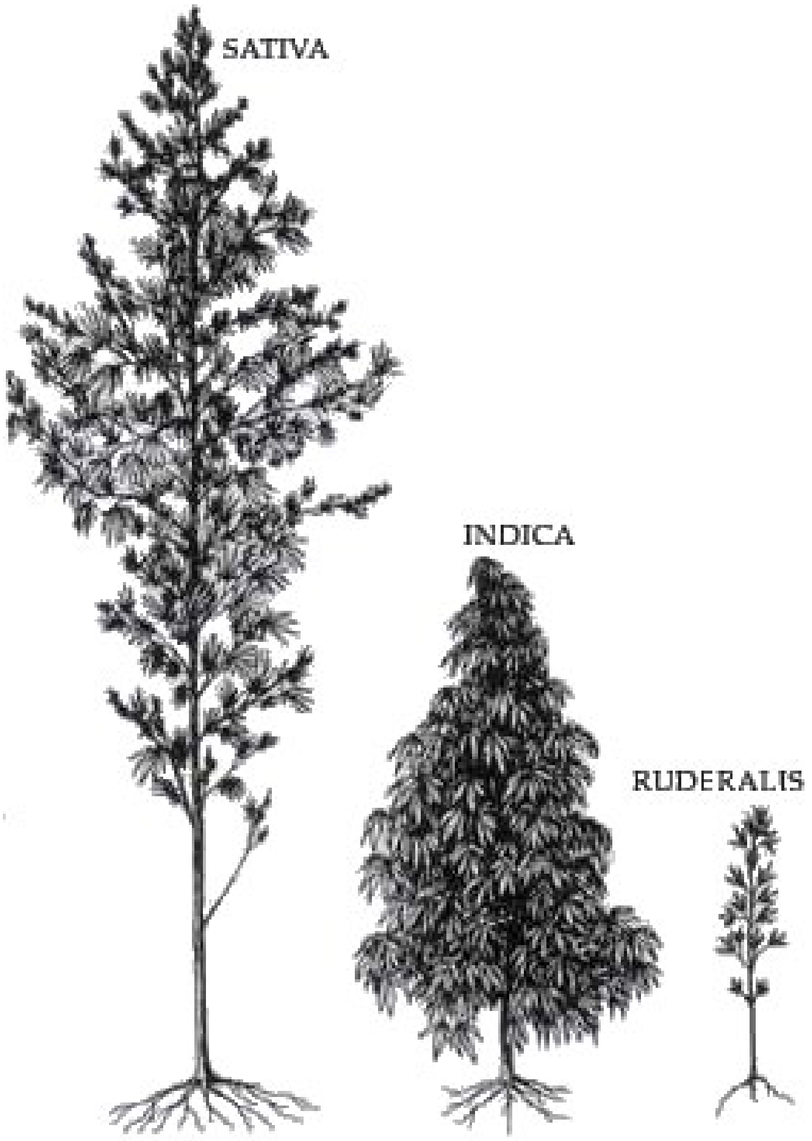
# NZ Hemp Industries Association
# iHemp and History



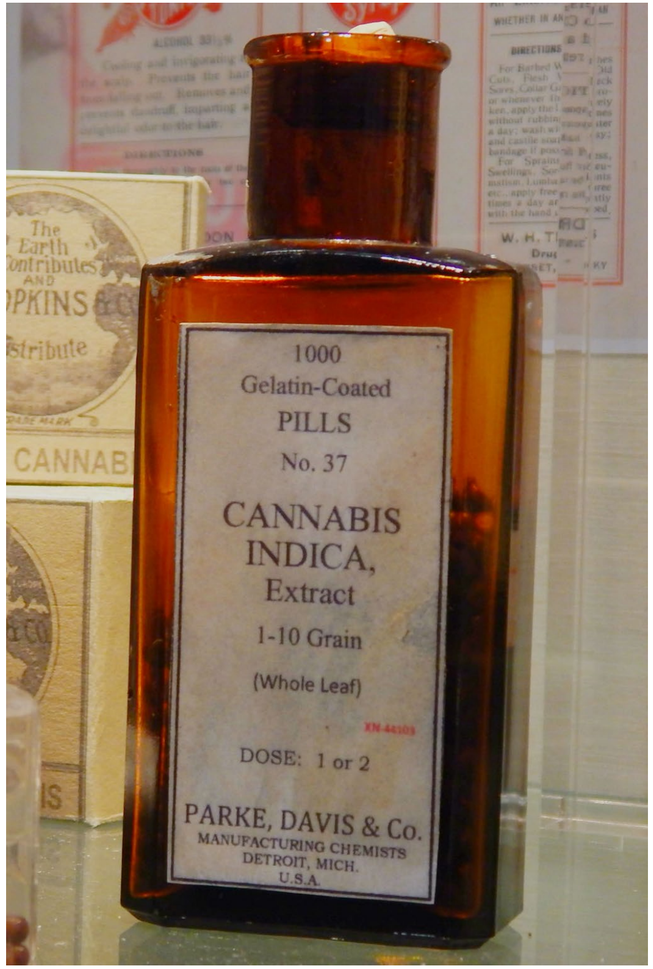


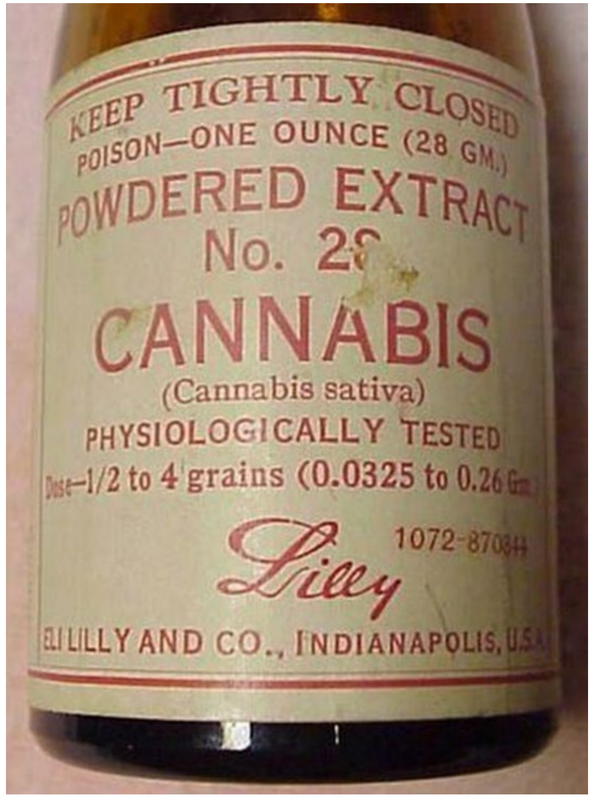


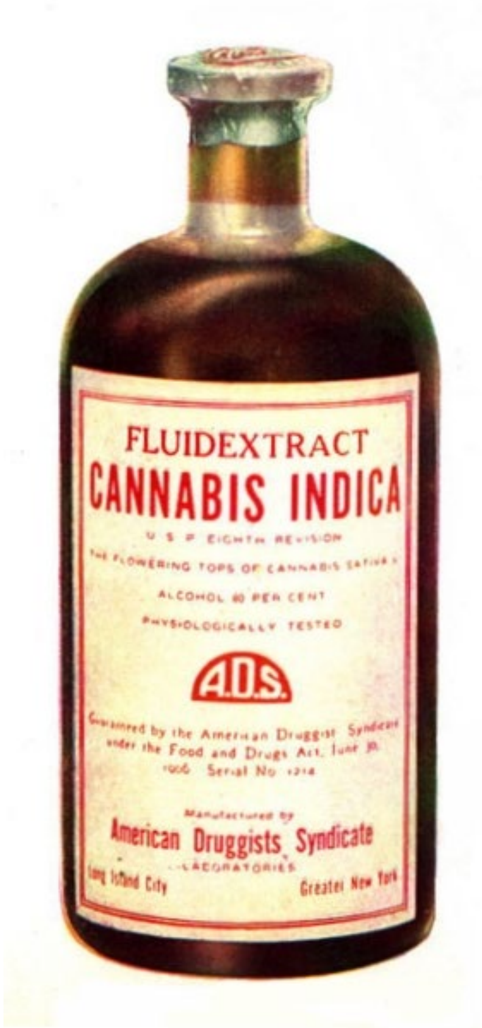
NZHIA
Food. Fibre. Health.

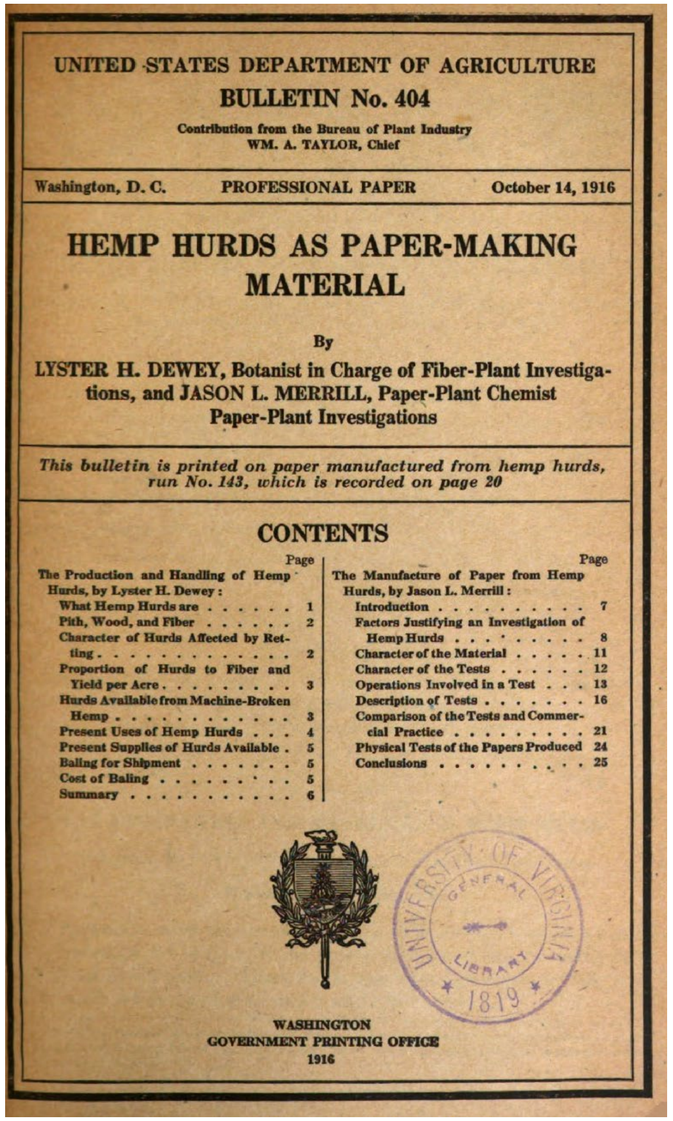

SATIVA
INDICA
RUDERALIS


SATIVA
INDICA
RUDERALIS


1000
Gelatin-Coated
PILLS
No. 37
CANNABIS
INDICA,
Extract
1-10 Grain
(Whole Leaf)
DOSE: 1 or 2
PARKE, DAVIS & Co.
MANUFACTURING CHEMISTS
DETROIT, MICH.
U.S.A.


KEEP TIGHTLY CLOSED
POISON—ONE OUNCE (28 GM.)
POWDERED EXTRACT
No. 2
CANNABIS
(Cannabis sativa)
PHYSIOLOGICALLY TESTED
Dose—1/2 to 4 grains (0.0325 to 0.26 Gm.
1072-87044
Lilly
ELI LILLY AND CO., INDIANAPOLIS, U.S.A.


FLUIDEXTRACT
CANNABIS INDICA
U. S. P. EIGHTH REVISION
THE FLOWERING TOPS OF CANNABIS SATIVA L.
ALCOHOL 60 PER CENT
PHYSIOLOGICALLY TESTED
ADS
Guaranteed by the American Druggist Syndicate
under the Food and Drugs Act, June 30,
1906. Serial No. 1214
Manufactured by
American Druggists Syndicate
LABORATORIES
Long Island City
Greater New York



UNITED STATES DEPARTMENT OF AGRICULTURE

BULLETIN No. 404

Contribution from the Bureau of Plant Industry
WM. A. TAYLOR, Chief

Washington, D. C. PROFESSIONAL PAPER October 14, 1916

# HEMP HURDS AS PAPER-MAKING MATERIAL

By

LYSTER H. DEWEY, Botanist in Charge of Fiber-Plant Investigations, and JASON L. MERRILL, Paper-Plant Chemist
Paper-Plant Investigations

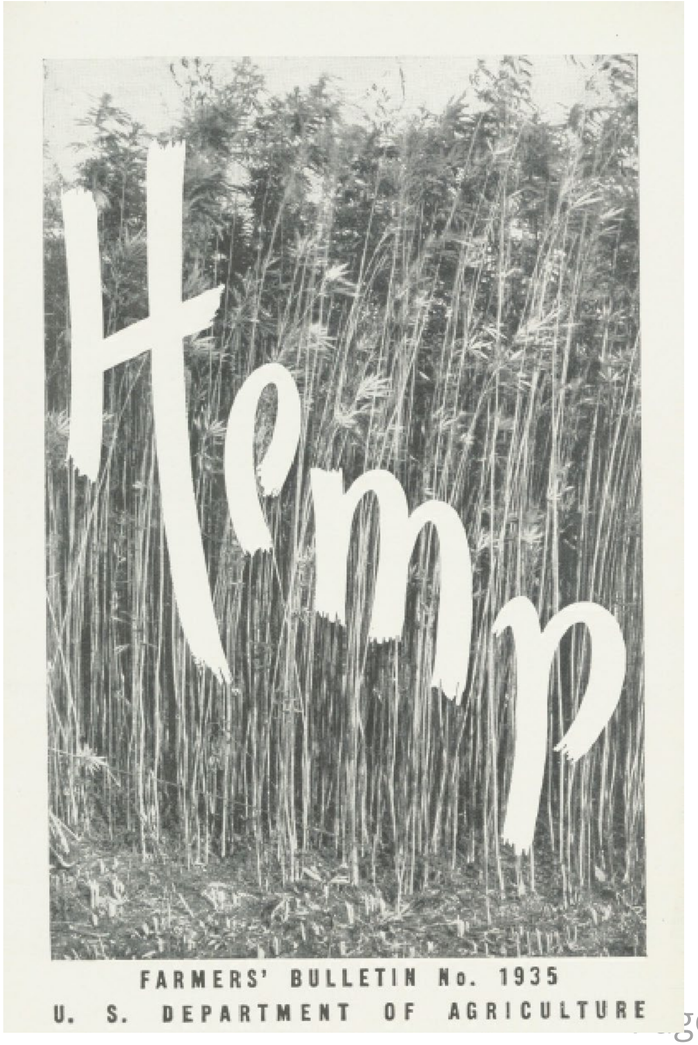
*This bulletin is printed on paper manufactured from hemp hurds, run No. 143, which is recorded on page 20*

## CONTENTS





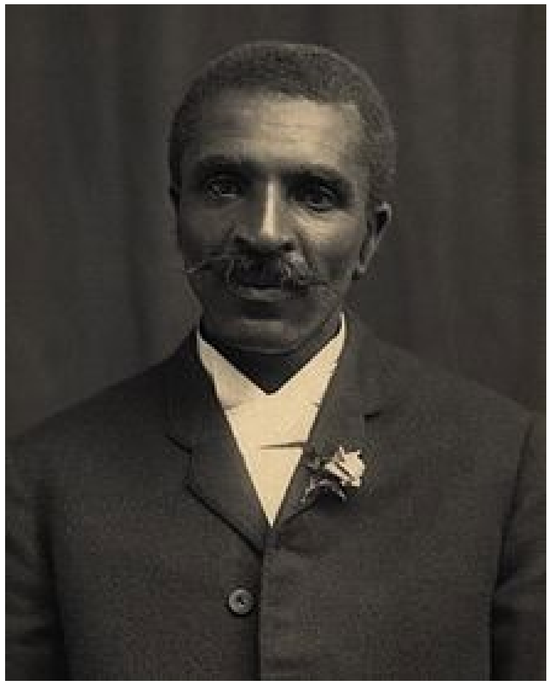
WASHINGTON
GOVERNMENT PRINTING OFFICE
1916



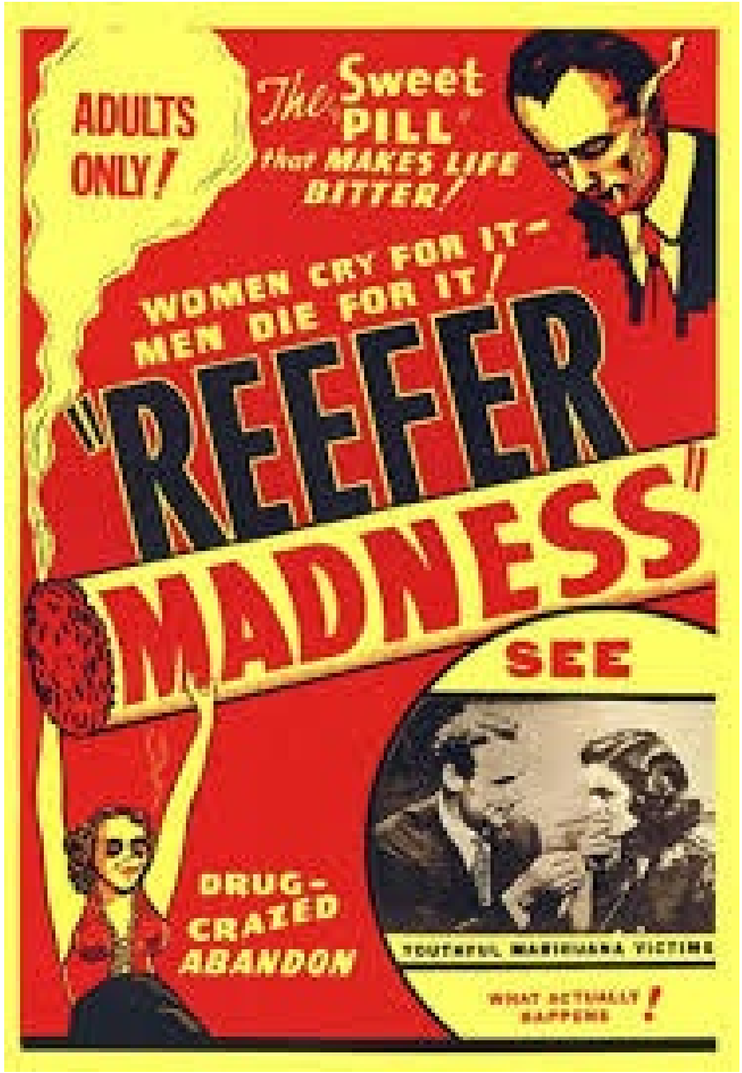

NZHIA
Food. Fibre. Health.

**Chemurgy** is a branch of applied chemistry that is concerned with preparing industrial products from agricultural raw materials

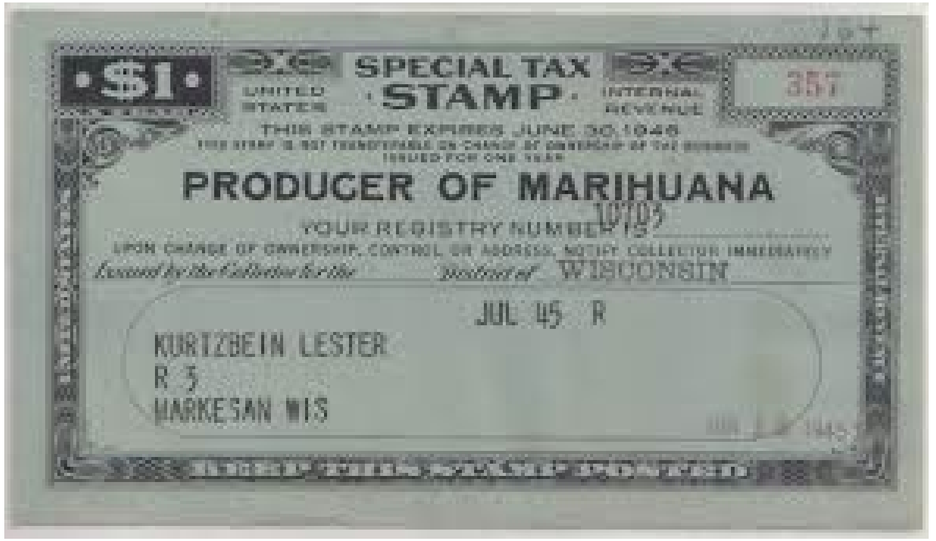


George Washington Carver c1910

Henry Ford  c1930










NZHIA
Food. Fibre. Health.

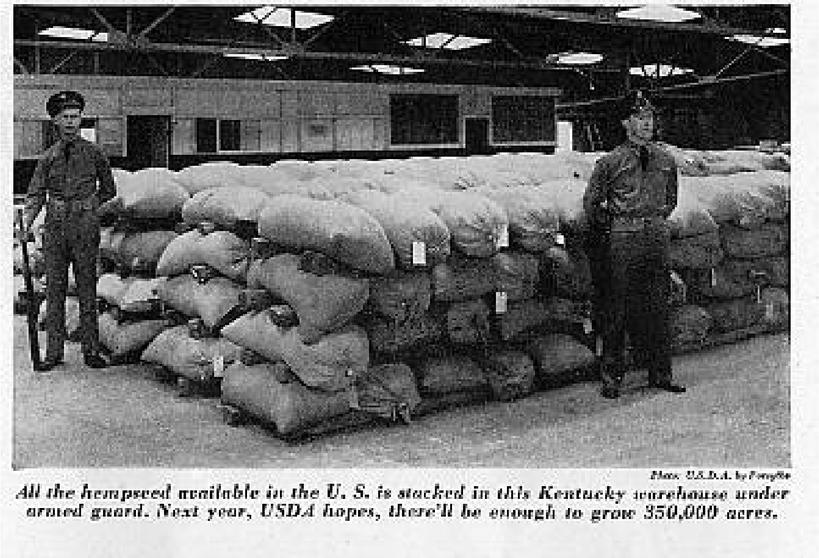
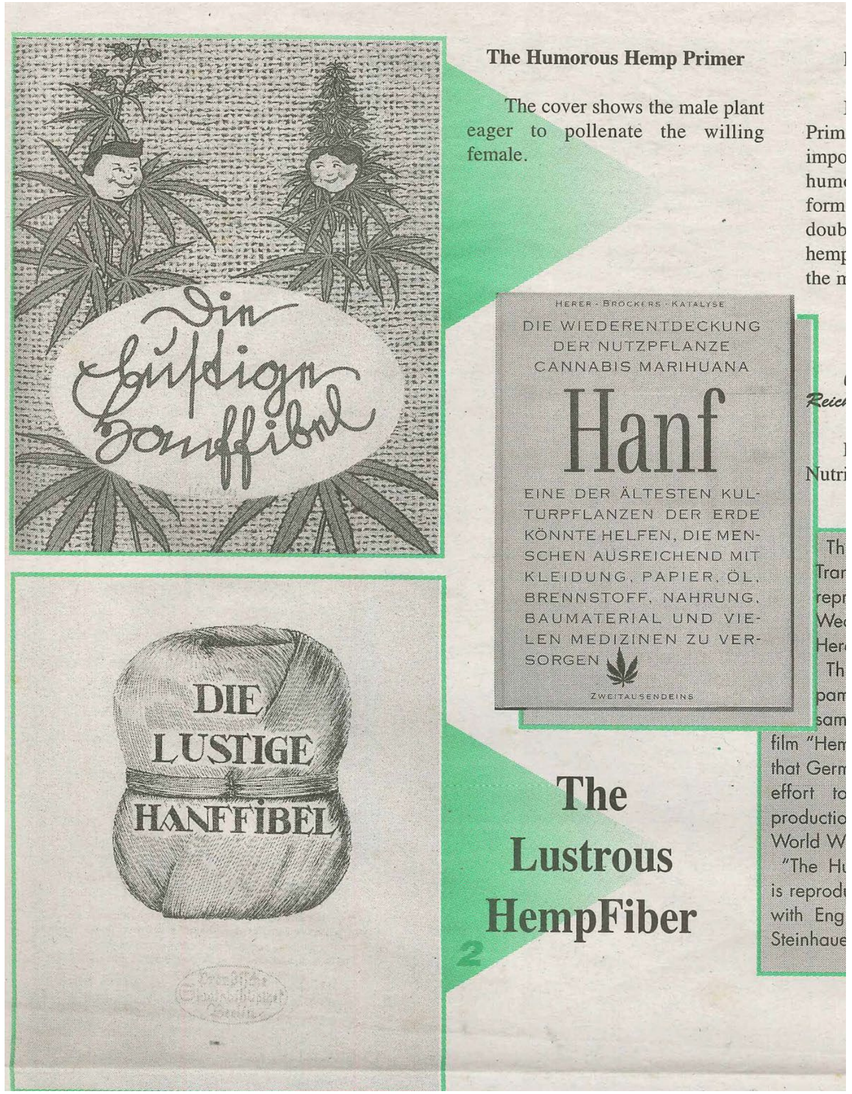



Photo: U.S.D.A. by Forsythe

*All the hempseed available in the U. S. is stacked in this Kentucky warehouse under armed guard. Next year, USDA hopes, there'll be enough to grow 350,000 acres.*






NZHIA
Food. Fibre. Health.

SINGLE CONVENTION
ON
NARCOTIC DRUGS, 1961,

as amended by
the 1972 Protocol Amending the Single Convention
on Narcotic Drugs, 1961

## *Article 28. Control of cannabis*

1. If a Party permits the cultivation of the cannabis plant for the production of cannabis or cannabis resin, it shall apply thereto the system of controls as provided in article 23 respecting the control of the opium poppy.

2. This Convention shall not apply to the cultivation of the cannabis plant exclusively for industrial purposes (fibre and seed) or horticultural purposes.

3. The Parties shall adopt such measures as may be necessary to prevent the misuse of, and illicit traffic in, the leaves of the cannabis plant.

# Misuse of Drugs (Industrial Hemp) Regulations 2006

(SR 2006/163)

## 3 Object

The object of these regulations is to enable the cultivation and distribution of industrial hemp under a licensing regime that ensures that other forms of cannabis are not cultivated and distributed under the guise of industrial hemp.

MIDLANDS
Nutritional Oils


Hemp Farm

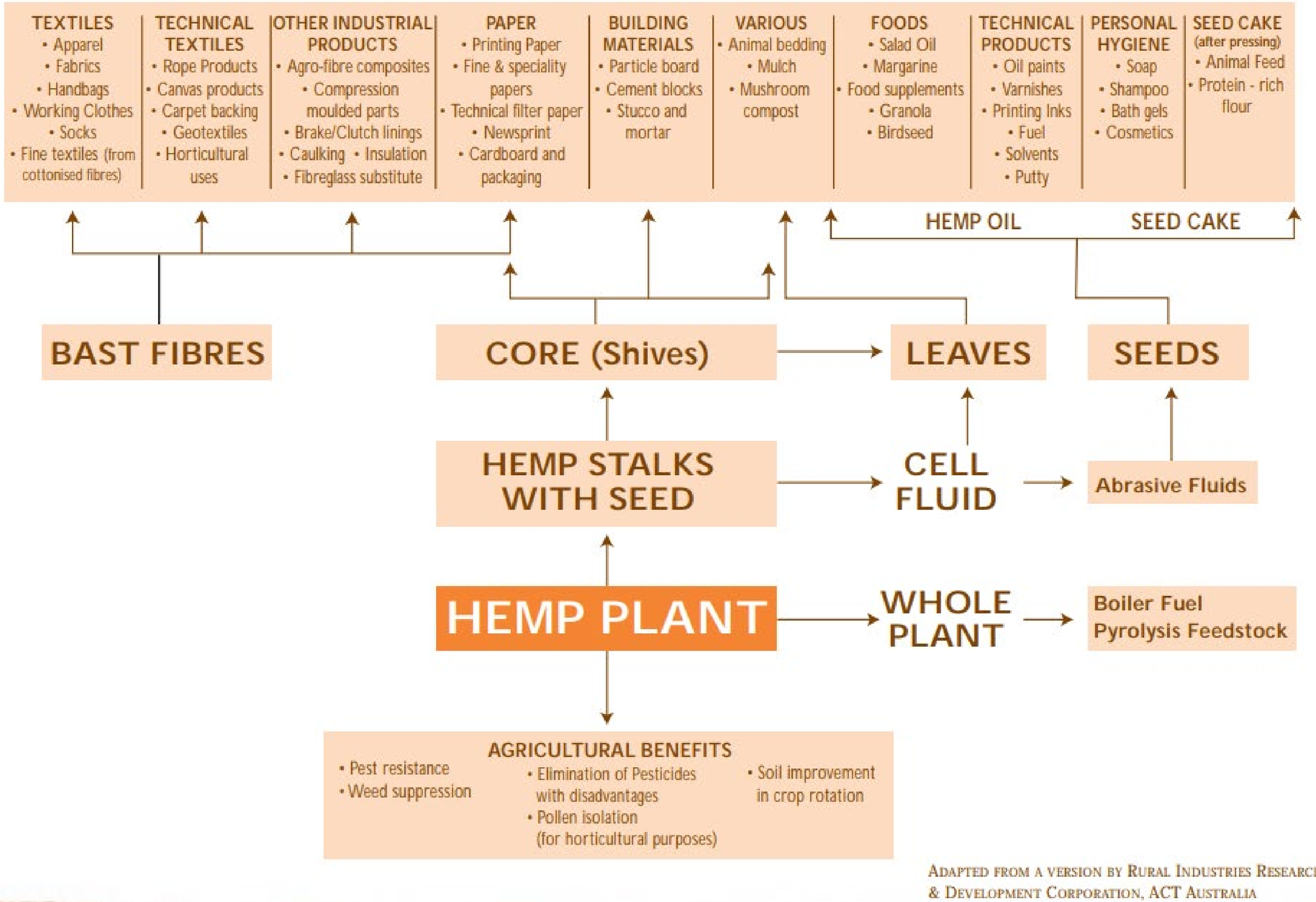
hempfarm.co.nz





NZHIA
Food. Fibre. Health.


Naturfaer-Bauteile in der C-Klasse




Adapted from a version by Rural Industries Research & Development Corporation, ACT Australia

THE NZHIA
iHEMP
DISCOVERY & INVESTMENT
TOUR 2022
FOOD • FIBRE • HEALTH

# SPEAKERS

## RICHARD BARGE (NZHIA)

The NZHIA Chair presents a history of hemp in Aotearoa NZ and a new iHemp industry for Northern Waikato.

## BILL QUINN (ORGANICAG)

Opportunities and differences in production and marketing of iHemp.

## RACQUEL DUFFY (GLOBAL CANVAS)

How hemp can change the fashion world, and heal our whenua and moana.

## DR NICK MARSH (NEXT CORPORATION)

New Zealand Hemp export Driven Investor Re- port, unlocking the potential.

## KIM MURRELL (HILL LABORATORIES)

How Hill Laboratories has been supporting the Hemp Industry for compliance and soil fertility testing.


Hill Laboratories
TRIED, TESTED AND TRUSTED

# ABOUT US

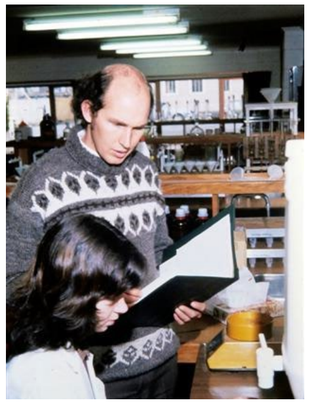
Hill Laboratories
TRIED, TESTED AND TRUSTED

www.hill-laboratories.com

# Hill Laboratories: A History


## 1984

Hill Laboratories established in Hamilton by Roger and Anne Hill, originally providing agricultural testing.



## 1988

Achieved TELARC certification, one of the first laboratories to achieve this

## 1991

Resource Management Act comes into effect in New Zealand resulting in a big increase in environmental testing

## 1993

First Gas Chromatography-Mass Spectrometry (GC-MS) instrument purchased

## 1997

Moved to 2400m2 four storey building at 1 Clyde Street.

## 2000

Food & Bioanalytical division established

## 2004

Air quality testing introduced at Te Aroha St site.

## 2005

Microbiological Lab set up in Christchurch to give Hill Laboratories a base in the South Island.

## 2006

Food & Bioanalytical moves to Innovation Park

## 2007

Japan operations launched.

## 2010

Melville lab opened.

**2010**

**WINNER:** Deloitte Fast 50 Award for fastest growing mature business in the Central North Island region

**WINNER:** Westpac Business of the Year Supreme Award at the Waikato Business Excellence Awards

## 2012

Blenheim lab opened.

## 2013

Drug testing introduced.

## 2014

Asbestos testing introduced in Christchurch.

## 2016

Auckland Asbestos Lab opened.

## 2017

Food microbiology now available in Hamilton.

Hamilton labs consolidated into one 7000m2 site on Duke St.

## 2018

Jonno Hill becomes CEO.

Wellington Asbestos Lab opens.

# Our Market Sectors

| | AGRICULTURE | ENVIRONMENTAL | FOOD | MICROBIOLOGY |
|---|---|---|---|---|
| Established: | 1984 | 1990 | 2000 | 2017 |
| Samples tested: | Soil<br>Feed<br>Plant and crop | Water<br>Air Quality<br>Meth<br>Asbestos | Kiwifruit<br>Honey<br>Fruits & vegetables<br>Processed<br>Wine | Water<br>Food |
| Testing for: | Nutrients | Contamination | Pesticide residues<br>Export clearance<br>Nutritional value | Contamination |
| Customers: | Fertiliser companies<br>Merchants<br>Agricultural consultants<br>Farmers/crop growers | Regional and District Councils<br>Environmental consultants<br>Industrial | Crop growers<br>Food producers<br>Exporters<br>Packhouses<br>MPI | Councils<br>Food producers<br>Packhouses |

Hill Laboratories
TRIED, TESTED AND TRUSTED

www.hill-laboratories.com

We are the **lab of choice** because we are reliable, trusted and respected. We are the recognised **experts in our field** and we make it easy for our customers to work with us.

# OUR VISION

**P** People are valued & we enjoy our work

**I** Innovation & agility

**H** Honesty & integrity

**A** Accountable & disciplined

# OUR VALUES

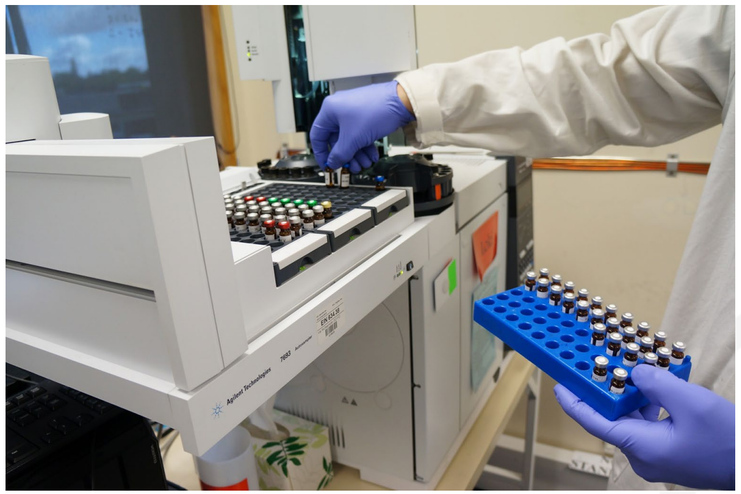
**We make a difference** for our customers by helping them increase their productivity, ensure safety, minimise environmental impact, meet regulatory requirements and support **their communities' well-being.**

# OUR REASON FOR BEING (MISSION)

# Our Technology

**We use the latest analytical instruments including:**

- 48 Liquid and Gas Chromatograph instruments, incl. 40 Mass Spectrometers
- 5 NIR instruments
- 20 Auto Analysers
- 8 Discrete Analysers
- 11 Ion Chromatographs
- 4 ICP-OES
- 4 ICP-MS
- 3 Combustion Analysers
- 5 TOC Analysers
- 1 IRMS
- 1 QE High Resolution Mass Spectrometer



# Expertise


**14**
PhDs

**50**
Masters

**197**
Bachelors degrees

**119**
Diplomas, PgDips and Certificates

# THC Compliance and Cannabinoids

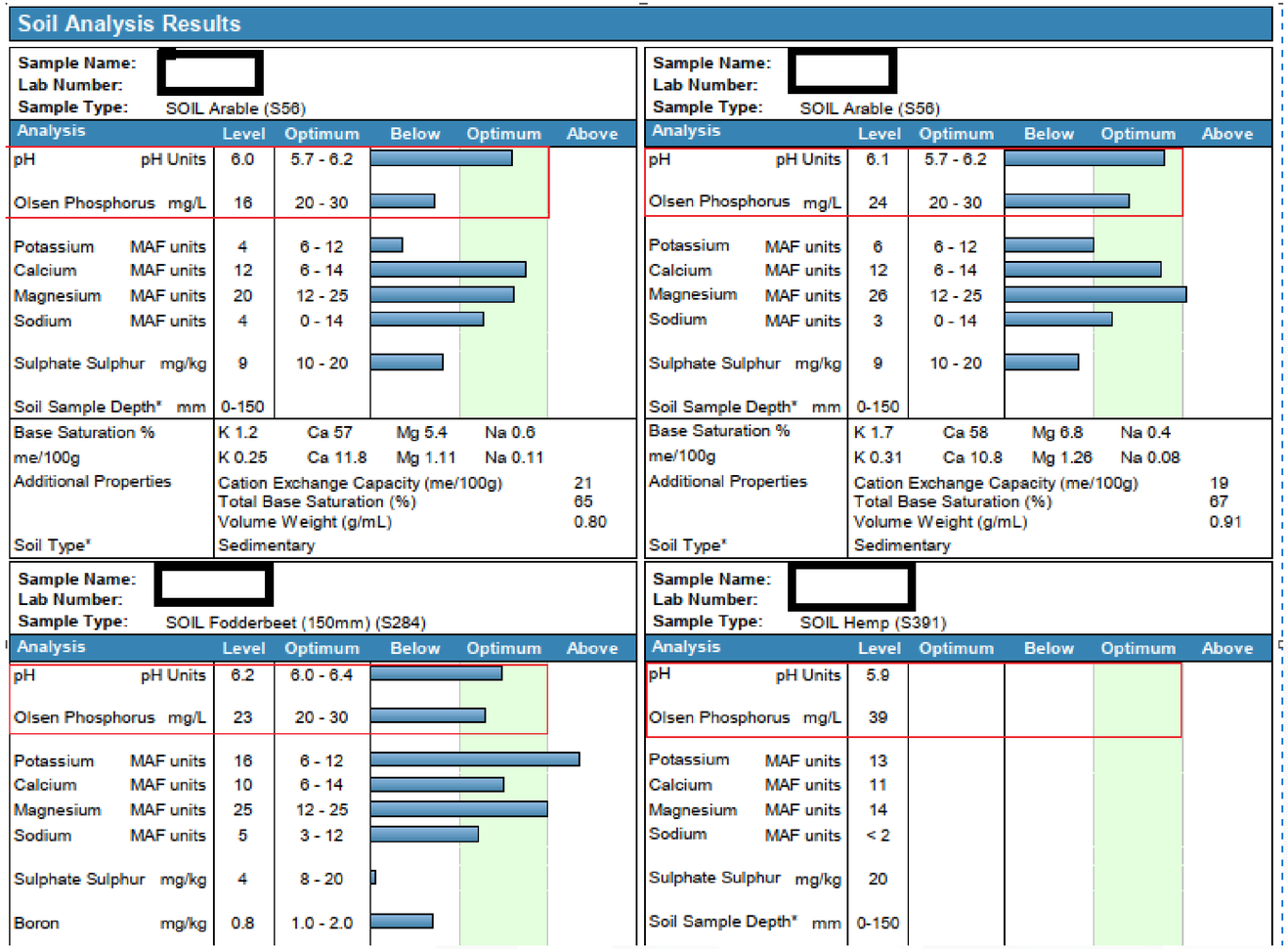
- Hemp THC testing for compliance is available
  - Test code: ‘HempTHC’
  - IANZ accredited
  - Recognised by Ministry of Health
  - THCA and THC reported as total potential THC
  - Low detection limits for compliance
- Cannabinoid test
  - Primarily for medicinal cannabis industry
  - 10x higher detection limits to allow for higher cannabinoid levels (highest observed is 40% THC/THCA!!)
  - THC, THCA, CBD, CBDA, CBC, CBCA, CBG, CBGA, CBN, CBNA, d8THC, THCV, THCVA
  - Test code: ‘Cannabinoids’

# Nutrient Management

- Soil Testing
  - Ensure the required nutrients are there for the plants, understand nutrient availability
- Leaf Testing
  - Troubleshooting or understanding nutrient deficiencies or excesses: Healthy vs Unhealthy plants
- Environmental Monitoring
  - Water and soil testing for nutrient loss and pollutants
  - Nitrogen leaching and phosphorus runoff
  - Fertiliser savings if additional nutrients are not required
  - Contaminants from past land use
  - Hemp for bioremediation!!

# Soil Tests

- Basic Soil test
  - pH
  - Cations (K, Ca, Mg, Na)
  - Olsen P (standard NZ P test, field calibrated)
- Sulphate Sulphur
- Nitrogen tests
  - Total nitrogen
  - Anaerobically Mineralisable N (AMN): labile nitrogen pool - mid term availability
  - Mineral N: immediately available N pool
- Organic soil profile
  - Total N, Total C, AMN and relevant ratios
- Hot Water Extractable N
  - New test in 2019
  - Ongoing research with Manaaki Whenua / Landcare Research
  - Potentially superior to AMN



**Soil Analysis Results**

**Sample Name:** [redacted]
**Lab Number:**
**Sample Type:** SOIL Arable (S56)

| Analysis | | Level | Optimum | Below Optimum | Above |
|---|---|---|---|---|---|
| pH | pH Units | 6.0 | 5.7 - 6.2 | | |
| Olsen Phosphorus | mg/L | 16 | 20 - 30 | | |
| Potassium | MAF units | 4 | 6 - 12 | | |
| Calcium | MAF units | 12 | 6 - 14 | | |
| Magnesium | MAF units | 20 | 12 - 25 | | |
| Sodium | MAF units | 4 | 0 - 14 | | |
| Sulphate Sulphur | mg/kg | 9 | 10 - 20 | | |
| Soil Sample Depth* | mm | 0-150 | | | |
| Base Saturation % | | K 1.2 | Ca 57 | Mg 5.4 | Na 0.6 |
| me/100g | | K 0.25 | Ca 11.8 | Mg 1.11 | Na 0.11 |
| Additional Properties | | Cation Exchange Capacity (me/100g) | | | 21 |
| | | Total Base Saturation (%) | | | 65 |
| | | Volume Weight (g/mL) | | | 0.80 |
| Soil Type* | | Sedimentary | | | |

**Sample Name:** [redacted]
**Lab Number:**
**Sample Type:** SOIL Arable (S56)

| Analysis | | Level | Optimum | Below Optimum | Above |
|---|---|---|---|---|---|
| pH | pH Units | 6.1 | 5.7 - 6.2 | | |
| Olsen Phosphorus | mg/L | 24 | 20 - 30 | | |
| Potassium | MAF units | 6 | 6 - 12 | | |
| Calcium | MAF units | 12 | 6 - 14 | | |
| Magnesium | MAF units | 26 | 12 - 25 | | |
| Sodium | MAF units | 3 | 0 - 14 | | |
| Sulphate Sulphur | mg/kg | 9 | 10 - 20 | | |
| Soil Sample Depth* | mm | 0-150 | | | |
| Base Saturation % | | K 1.7 | Ca 58 | Mg 6.8 | Na 0.4 |
| me/100g | | K 0.31 | Ca 10.8 | Mg 1.26 | Na 0.08 |
| Additional Properties | | Cation Exchange Capacity (me/100g) | | | 19 |
| | | Total Base Saturation (%) | | | 67 |
| | | Volume Weight (g/mL) | | | 0.91 |
| Soil Type* | | Sedimentary | | | |

**Sample Name:** [redacted]
**Lab Number:**
**Sample Type:** SOIL Fodderbeet (150mm) (S284)

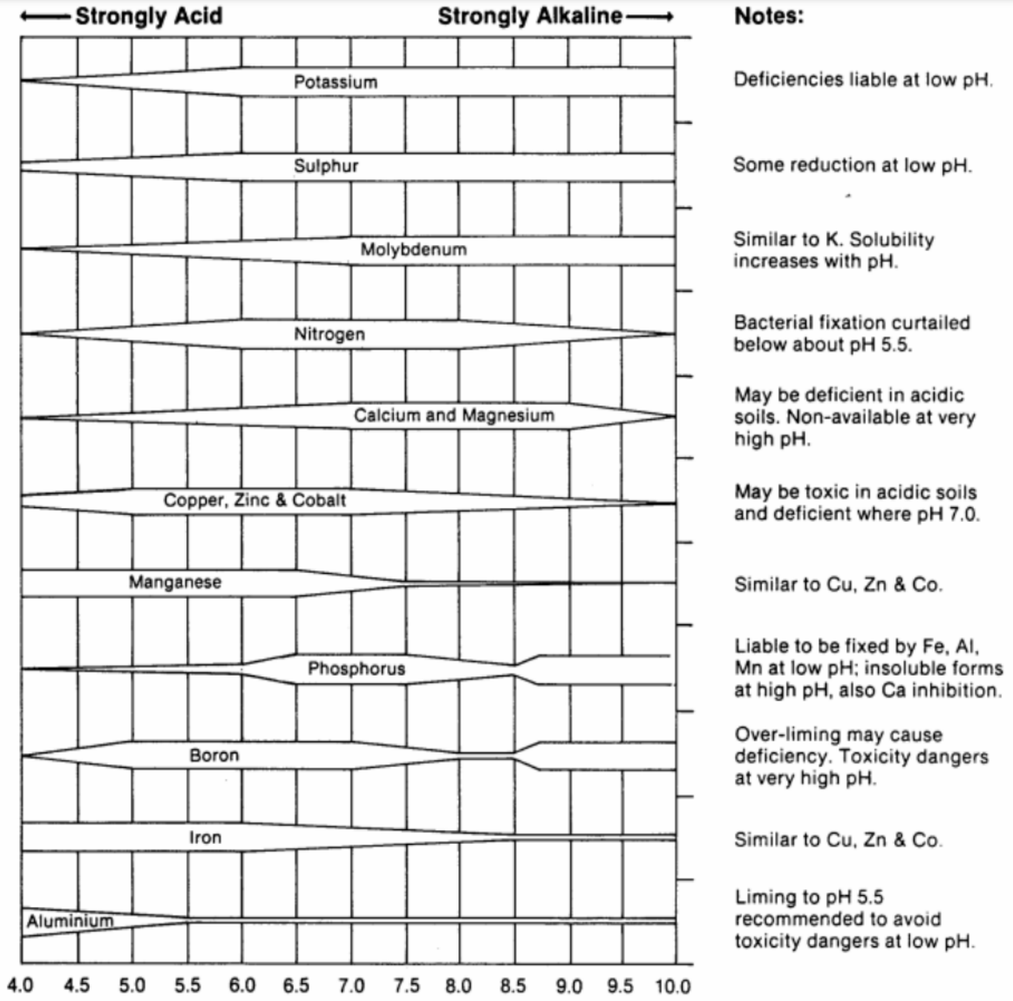
| Analysis | | Level | Optimum | Below Optimum | Above |
|---|---|---|---|---|---|
| pH | pH Units | 6.2 | 6.0 - 6.4 | | |
| Olsen Phosphorus | mg/L | 23 | 20 - 30 | | |
| Potassium | MAF units | 16 | 6 - 12 | | |
| Calcium | MAF units | 10 | 6 - 14 | | |
| Magnesium | MAF units | 25 | 12 - 25 | | |
| Sodium | MAF units | 5 | 3 - 12 | | |
| Sulphate Sulphur | mg/kg | 4 | 8 - 20 | | |
| Boron | mg/kg | 0.8 | 1.0 - 2.0 | | |

**Sample Name:** [redacted]
**Lab Number:**
**Sample Type:** SOIL Hemp (S391)

| Analysis | | Level | Optimum | Below Optimum | Above |
|---|---|---|---|---|---|
| pH | pH Units | 5.9 | | | |
| Olsen Phosphorus | mg/L | 39 | | | |
| Potassium | MAF units | 13 | | | |
| Calcium | MAF units | 11 | | | |
| Magnesium | MAF units | 14 | | | |
| Sodium | MAF units | < 2 | | | |
| Sulphate Sulphur | mg/kg | 20 | | | |
| Soil Sample Depth* | mm | 0-150 | | | |

# Soil Tests - pH

- Strong effect on the availability of nutrients
- Nutrients may be in the soil but not available for plant uptake
- Aluminium toxicity is common in acidic soils (pH< 5.5), treated with lime

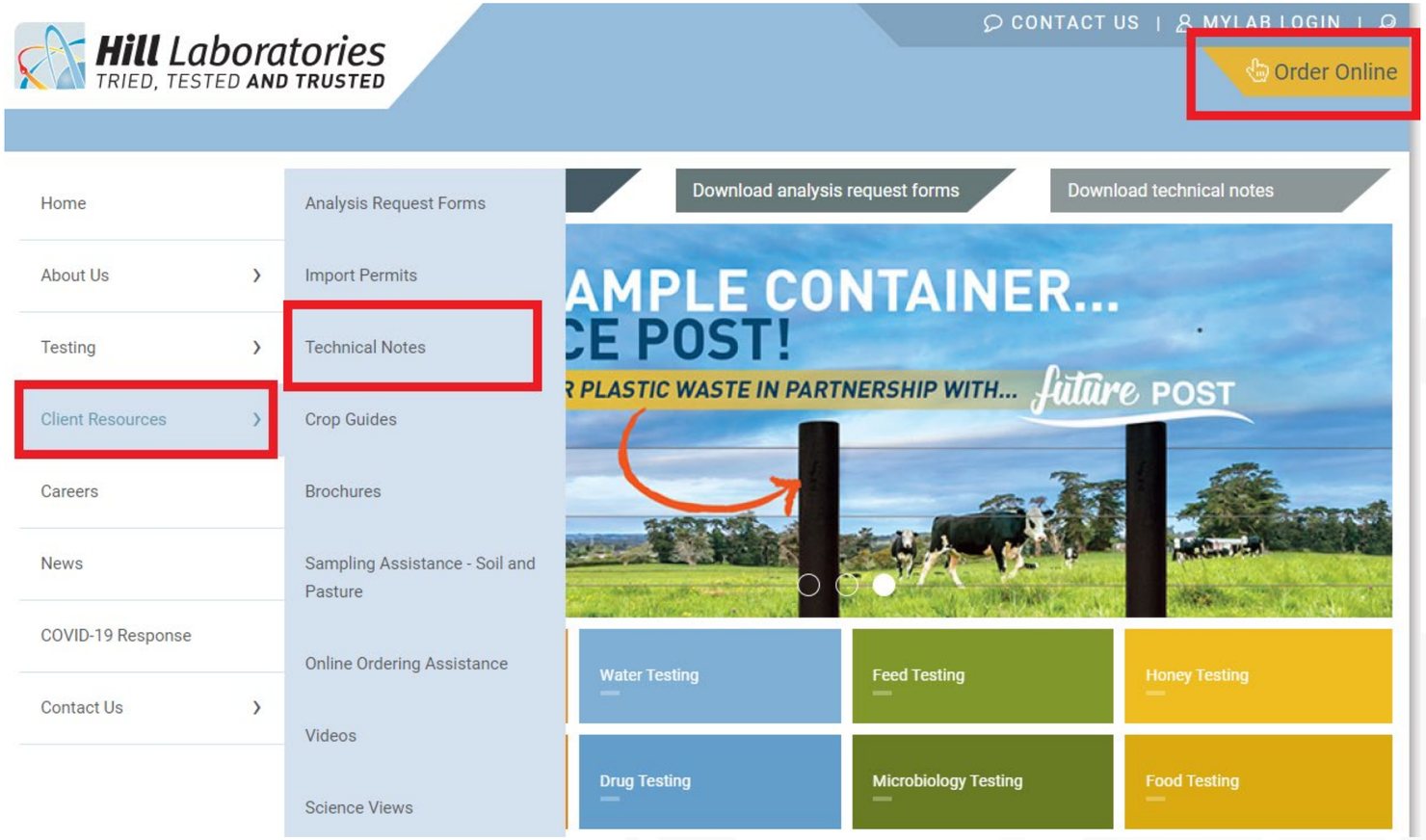


# Leaf Test

- Understand nutrient levels in the plant
- Identify deficiencies or toxicity
- Links to soil nutrient status and nutrient availability
- Basic Plant (N, P, K, S, Ca, Mg, Na, Fe, Mn, Zn, Cu, B)

# Resources

- www.hill-laboratories.com
- Technical Notes
  - Agriculture
    - Soil
    - Plant
  - Environmental
    - Soil
    - Water
- Order tests and sampling supplies online!



THE NZHIA
iHEMP
DISCOVERY & INVESTMENT
TOUR 2022
FOOD • FIBRE • HEALTH

# SPEAKERS

## RICHARD BARGE (NZHIA)

The NZHIA Chair presents a history of hemp in Aotearoa NZ and a new iHemp industry for Northern Waikato.

## BILL QUINN (ORGANICAG)

Opportunities and differences in production and marketing of iHemp.

## RACQUEL DUFFY (GLOBAL CANVAS)

How hemp can change the fashion world, and heal our whenua and moana.

## DR NICK MARSH (NEXT CORPORATION)

New Zealand Hemp export Driven Investor Re- port, unlocking the potential.

## KIM MURRELL (HILL LABORATORIES)

How Hill Laboratories has been supporting the Hemp Industry for compliance and soil fertility testing.

# Why Hemp Fashion

How Hemp Can Change our fashion world and heal our moana and whenua

Textile waste is one of Aotearoa's fastest growing waste streams with more then 220,000 tonnes ending up in landfills each year.

# This causes a huge problem

## Here's Why...

They last for Hundreds of years

Synthetic fabrics like polyester and Lycra can take hundreds of years to biodegrade.

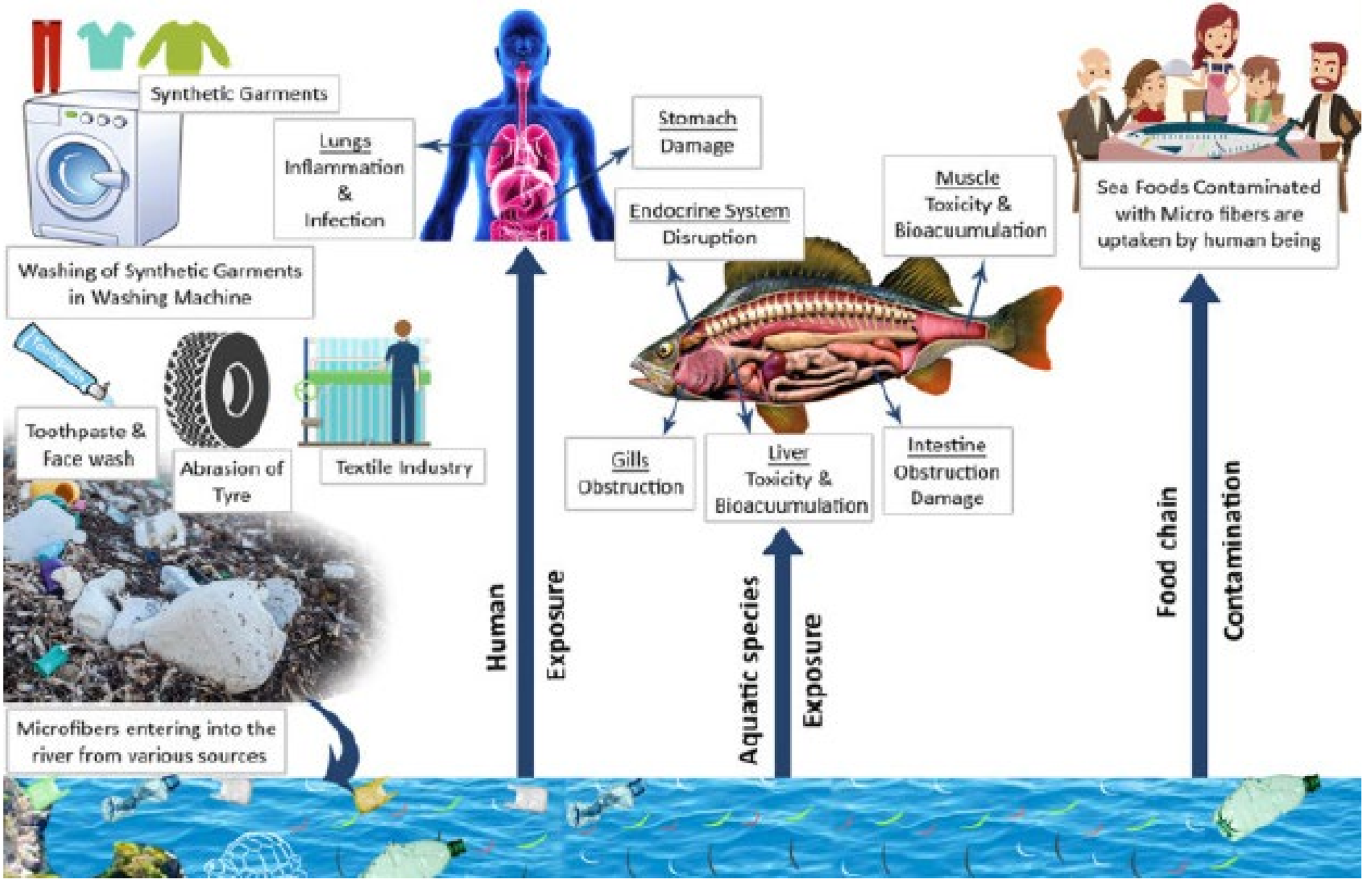
Polluting Microfibres

Fast fashion releases microfibres when washed, which leads to about 500,000 tons of microplastics in the ocean every year - the equivelent to 50 billion plastic bottles.

Greenhouse gases

In a landfill, the decomposing clothes release methane, a harmful greenhouse gas and leach toxic chemicals and dyes into the ground water and our soil.

# The Dangers of microfibres



# The harm caused before textile waste

## Ends up in landfill..

Adding colour

Dyeing is the most polluting and energy-intensive process involved in making our clothes. Dyeing processes in particular have a high energy demand because of the wet processes used, resulting in heating high amounts of water

Finishing process

Finishing is when chemicals or treatments are applied to fabric to give it the desired look or feel - such as bleaching, softening or making the garment anti-wrinkle .

# Introduction

**Our Mission**

**"To re-educate society on this ancient plant alongside creating and introducing the latest Hemp products with the latest sustainable breakthrough technology from around the world"**

We have so far achieved this by introducing the worlds first waterproof Hemp shoes and backpack, as well as the worlds first handcrafted Hemp eyewear and soon our exclusive Hemp Movement watches to Aotearoa.

By doing so we have gained distribution rights for these products in Aotearoa New Zealand

**Our Vision**

**"To re-create the world with Hemp"**

Hemp Fashion

# Industrial Hemp is an incredibly sustainable crop, producing over 20,000 Products

These include textile, paper, ropes, insulation material, fibre boards, bioplastics, compost, animal bedding, fuel, food, dietary supplements, cosmetics, shoes, and other fashion and homeware accessories, the list goes on...


# Hemp possesses a range of environmental benefits

## So, what are they?

Hemp grows easily in a wide range of climates , it is naturally resistant to most insects and kills weeds without chemicals . This means fertilisers aren't needed as the crop grows densely and regenerates quickly.

Hemp is able to remove harmful contaminants to improve soil quality. Hemp converts large quantities and extracted nutrients into useful products due to its large root system digging deep into the soil, stabilising and protecting the plant from erosion

Phytoremediation is a bioremediation process that uses various types of plants to remove, transfer, stabilize, and/or destroy contaminants in the soil and groundwater.

## Hemp has a crutial role in a greener and more sustainable future

For every tonne of Hemp produced, 1.63 tonnes of CO2 is removed from the air. Hemp absorbs 15 tonnes of CO2 per hectare. This makes Hemp a more effective CO2 sequenster then trees, being one of the fastest natural CO2 biomass conversion tools

Carbon Sequestration is the process of capturing and storing atmospheric carbon dioxide


# Hemp is a sustainable alternative to various products

For instance, Hemp is stronger, and more durable then coton. Hemp fibre is similar to linen in feel and breathability, unlike wool, which traps heat and can support the growth of bacteria. The thin waxy coating of a wool fibre called lanolin, contains fatty acids that inhibit the growth of bacteria.

Hemp has significantly better water usage. It takes over 5,000 gallons on water to produce 0.99kgs of cotton - to produce the same amount of Hemp, it takes less then 700 gallons of water.

# So what are the main differences between Hemp Fibre and Animal Fibre

Plant fibres are composed of cellulose, while animal fibre are composed of protein. These structural differences mean that cellulose and protein fibre  react differently when they are exposed to heat, water, soap, and dyes. Extreme temperature changes can cause some protein structures to interlock -as in felt- Plant fibres like Hemp can go through the same process suffering little to no damage.

Plant and animal fibres also react differently to pH levels. This is why when washing wool and other protein fibres, most people encourage the use of wool-safe detergents . Cellulose and protein fibers take dye differently. In most cases, fiber-reactive dyes are used to dye cellulose fibers, and acid dyes are used to dye protein fibers. Fiber reactive dyes attach permanently to cellulose fibers using a covalent (electron-sharing) bond. These molecules carry a "chromophore" which absorb varying spectrums of the light, allowing only certain spectrums to reflect. Covalent bonding is the one of the most basic and strongest types of chemical reactions.

# WHY HEMP FASHION?

- Hemp decomposes in four weeks to eight months in landfills.
- Its one of the most environmentally friendly fibers in the world.
- Hemp fashion is natural, breathable, lightweight, durable, anti-bacterial, anti -microbial and more.
- Hemp is a natural and renewable source.
- Hemp plants grow quicker then most trees and requires less water to grow and almost no pesticides or fertilizers.
- Textiles made from Hemp fibers are natural, bio-based, and biodegradable

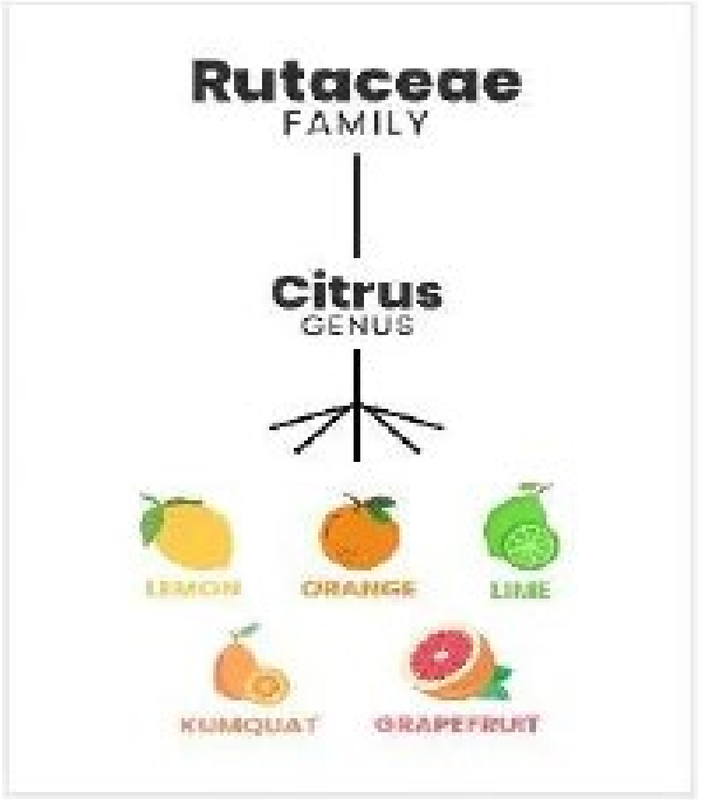
# What are some advantages and disadvantages of Hemp fashion?

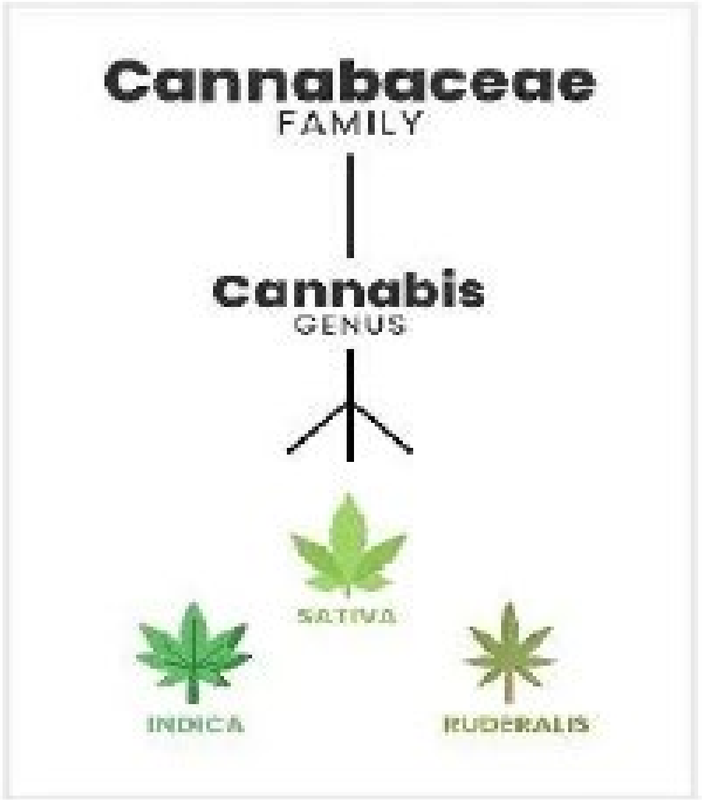
## Advantages

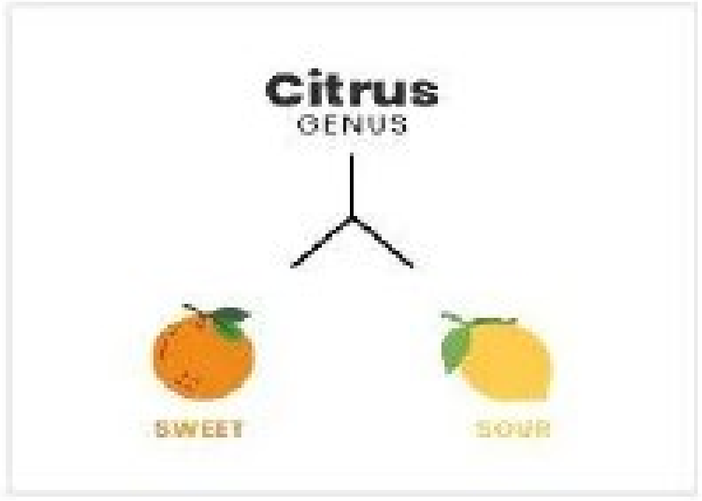
- Healthy working conditions in production
- Hemp is a Carbon Warrior
- Uses less water without polluting the water
- The soil loves Hemp
- Hemp is Antimicrobial and durable
- Hemp fabric softens with time
- Hemp fashion saves you from UV rays

## Disadvantages

- Hemp can be prone to wrinkling
- Hemp fashion can be very costly
- The stigma around Hemp





# A brief explanation on the difference between Hemp and Marijuana

# Here are some ways I reduce my closets impact on the planet

Buy less and keep clothes longer

Buy second-hand

Invest in sustainable brands if you can

Stay away from big oil fabrics like Nylon, Polyester, acrylic ect.

Repurpose old clothes

# For more information about Global Canvas

My Email

**hello@globalcanvas.co.nz**

My Website

**www.globalcanvas.co.nz**


# Thank You

For supporting the Hemp Movement in Aotaroa

THE NZHIA
iHEMP
DISCOVERY & INVESTMENT
TOUR 2022
FOOD • FIBRE • HEALTH

# SPEAKERS

## RICHARD BARGE (NZHIA)

The NZHIA Chair presents a history of hemp in Aotearoa NZ and a new iHemp industry for Northern Waikato.

## BILL QUINN (ORGANICAG)

Opportunities and differences in production and marketing of iHemp.

## RACQUEL DUFFY (GLOBAL CANVAS)

How hemp can change the fashion world, and heal our whenua and moana.

## DR NICK MARSH (NEXT CORPORATION)

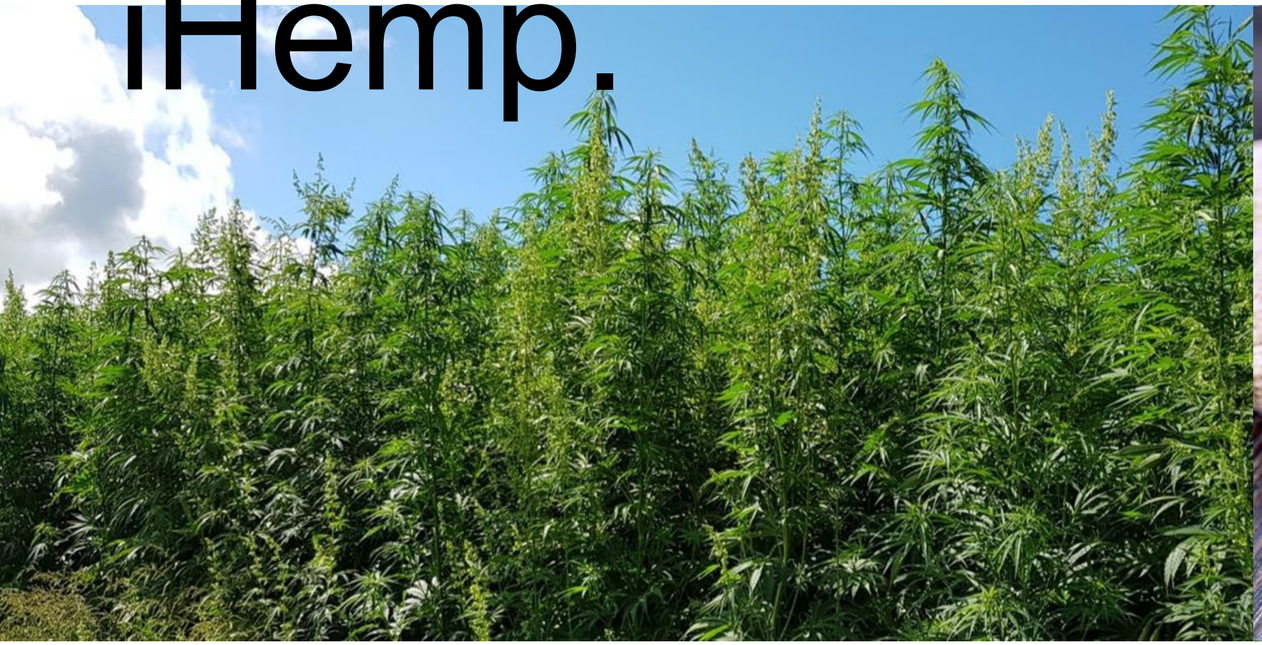
New Zealand Hemp export Driven Investor Re- port, unlocking the potential.

## KIM MURRELL (HILL LABORATORIES)

How Hill Laboratories has been supporting the Hemp Industry for compliance and soil fertility testing.

# Opportunities and differences in production and marketing of iHemp.

Bill Quinn
OrganicAg.

**2018 crop Manawatu.**
**Grown using organic compliant systems/inputs.**


www.sativabotanicals.co.nz
sativa botanicals
HEMP HEARTS
FROM THE HEART OF THE HEMP SEED
200g
www.sativabotanicals.co.nz
sativa botanicals
HEMP HEART PROTEIN+
HIGHEST QUALITY PLANT BASED PROTEIN
74%
www.sativabotanicals.co.nz
sativa botanicals
HEMP PROTEIN
RICH IN ESSENTIAL AMINO ACIDS & OMEGA
VEGAN
RAW
HEMP SEED OIL
HEMP SEED OIL
BioPak
sativa botanicals


Tea
Infusions
Infusions
Gluten Free
Gluten Free
Gluten Free
trade aid
trade aid
trade aid
ORGANIC FAIR TRADE EARL GREY TEA
ORGANIC FAIR TRADE ENGLISH BREAKFAST TEA
pic's REALLY GOOD BOYSENBERRY
pic's REALLY GOOD BOYSENBERRY
pic's REALLY GOOD PEANUT & CHOCOLATE BUTTER
pic's REALLY GOOD PEANUT & CHOCOLATE BUTTER
Club Deal
Club Deal
Club Deal
Club Deal
Organic
11.49
9.49
5.49
7.29
5.99


NIMBIN HEMP EMBASSY
Thempembassy.net
We are not criminals
0266891842
NIMBIN ARTISTS GALLERY

# iHemp seed *less* cold pressed oil *equals* iHemp seed-cake (husk in)


KANAPU
THIS WAY UP
12 x 250ml
6.2kg gross
HEMP SEED OIL
HEMP SEED FLAKES
Hemp comes in from the cold
A formerly banned crop is today winning converts among kiwi farmers, reports Jamie Gray

Pellets

# Hemp Board ~ The Superior Particle Board for the 21st Century

Ecoteam Hemp Board is a type of particle board which is manufactured predominantly from Cannabis hemp hurd fibre. A thin surface of recycled wood gives it a fine finish and additional structure. Ecoteam Hemp Board represents a superior sustainable substitute for conventional particle board with many advantageous properties.


## Look at these advantages

### ☑ Lightweight & Strong

It's lighter but stronger than most conventional particle boards and medium density fibreboards. The density ranges from 450 kg/m3 to 490 kg/m3 which is around ½ to ¾ the density of wood-based particle board.

### ☑ Water and mould resistant

It can withstand weeks of complete immersion in water with negligible loss of structural integrity, edge disintegration and minimal swelling. Hemp particle board dries back to the original dimensions, and is not prone to mould.

### ☑ Excellent insulation properties

It has excellent thermal and acoustic insulation properties, reducing or mitigating the need for additional insulation materials. The thicker the board, the better the insulation properties.

### ☑ Sustainable building product

It's composed predominantly of hemp fibres, and contains a surface of recycled wood fibre (sawmill waste) which adds a fine finish and additional structural properties. Hemp is a source of low-impact renewable fibre.

See us at the Sustainable Living Expo ~ Site 24

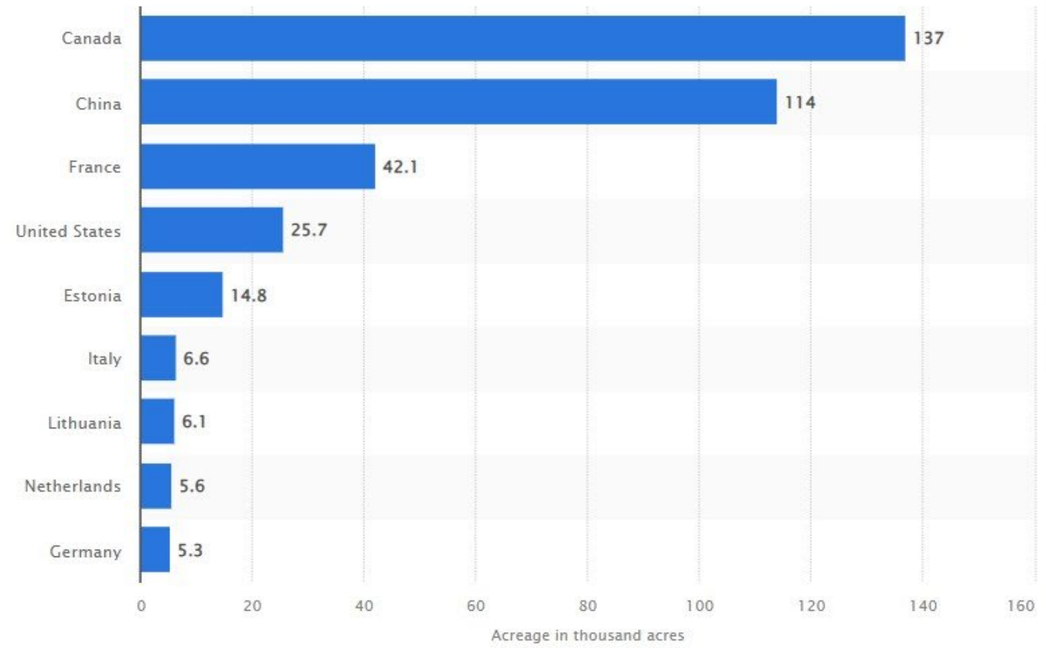
43 Ewing St, Lismore Ph: 6621 5123 / 0428 888 123
email: info@ecoteam.com.au www.ecoteam.com.au

ecoteam

Volume

https://www.statista.com/statistics/980098/global-hemp-cultivation-acreage-by-country/

*(in 1,000 acres)*




DOWNLOAD

PDF XLS PNG PPT +

SOURCE DETAILS FAQ

**Sources**
FAO; Health Canada; New Frontier Data; Hemp Business Journal; Vote Hemp; EIHA

**Survey by**
Health Canada; Hemp Business Journal; FAO; EIHA; Vote Hemp

**Published by**
New Frontier Data

**Source link**
The Global Hemp Industry Outlook 2019, page 6

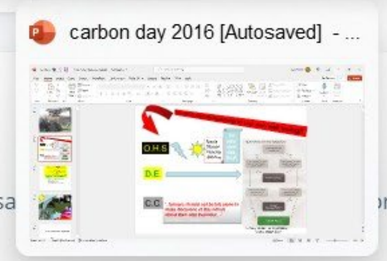
**Release date**
February 2019

**Details:** Canada; China; Estonia; France; Germany; Italy; Lithuania; Netherlands; United States; Health Canada; Hemp Business Journal; FAO; EIHA; Vote Hemp; 2017

Request publishing rights



carbon day 2016 [Autosaved] - Compatibility Mode - PowerPoint




## Acreage for hemp cultivation in 2017, by country

Published by M. Shahbandeh, Oct 19, 2021

The statistic shows the acreage of hemp cultivation worldwide in 2017, by country. In 2017, 137 thousa or hemp cultivation in Canada, the largest amount of acreage for hemp cultivation by a nation worldwide.

Volume versus Value ?

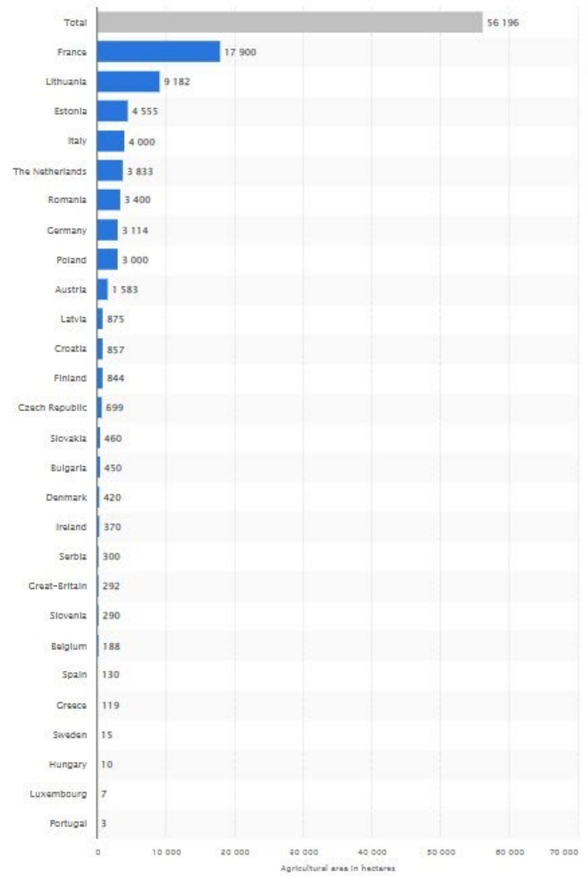
https://www.statista.com/statistics/1204146/area-for-hemp-cultivation-by-country-europe/

Consumer Goods & FMCG › Cannabis

PREMIUM

# Agricultural area dedicated to hemp cultivation in Europe in 2019, by country

*(in hectares)*




DOWNLOAD

PDF XLS PNG PPT

SOURCE DETAILS FAQ

**Source**
InterChanvre

**Survey by**
InterChanvre

**Published by**
InterChanvre

**Source link**
Interchanvre - La culture - Les chiffres clés

**Release date**
January 2021

**Details:** Europe; InterChanvre; 2019

Request publishing rights



**Agricultural land devoted to the culture of hemp in Europe in 2019, by country**

Published by Eloise Trenda, Jul 5, 2021

With almost 18.000 hectares (approximately 44,478.97 acres), France is the country with the largest agricultural area dedicated to hemp cultivation in Europe. Over 9,000 hectares of farmland are used to grow hemp in Lithuania, placing the country on the second step of the European podium.

# Traceability That's bankable!!!!$$$$$????

## Certified Organic; *Carbon farming for decades!*

- Fastest growing market worldwide.
- Over 25 years of success.
- Market access.
- Market surety.
- High value markets.
- Follow those already involved and those that helped them.

?

?

{Beyond Organic™.

{Go Beyond Organic™.

{Nature and More™.

~~**Certified organic**~~ and ~~**more!!**~~

- Taking the next step;
- Ecological measurement
- Social measurement
- Energy footprint
- Packaging

**Beyond Organi*x*™.**

- Use synthetic chemicals.
- Use urea, DAP, etc
- NDF and Brix
- No established market.

(***not even organic!)***

**Beyond Organics™**

For products that do not meet the organic certification requirements

## Piggy backers that failed;

**Eco'98;**

- Mid 90's
- Change no production methods.
- Better marketing.

Never got off the ground!!

**Organza™;**

- Early 2000's
- Never got off the ground.

Trust those that HAVE trust and history!

**Certified Organics'; delivering for both farmer and consumer for decades.**

**Complete food creates a complete environment.**

- ***glyphosate*** sprayed pasture/oat crop.
- Conventional >>**yes**
- Regen—Ag >>**yes**
- Organic-----**NO**

- ***glyphosate*** sprayed pasture cultivation for crop.
- Spray Free>>**yes**
- Conventional >>**yes**
- Regen—Ag >>**yes**
- Organic-----**NO**

- In milk herd grazing ***glyphosate*** pasture.
- Conventional >>**yes**
- Regen—Ag >>**yes**
- Organic-----**NO**

"Perception is reality in the marketplace."
*Peter Cullinane.*

"Perception is reality in the marketplace."
*Peter Cullinane.*

- In milk sheep grazing ***glyphosate*** pasture.
- Christmas lamb anyone?
- Conventional >>**yes**
- Regen—Ag >>**yes**
- Organic-----**NO**

https://www.nzfap.com

New Zealand Farm Assured™
nzfap.com

# NZFAP and NZFAP Plus - New Zealand's National Farm Assurance Programmes

**Our seal of origin delivers trusted and authentic ORIGIN, TRACEABILITY, FOOD SAFETY and ANIMAL WELFARE standards to our global consumers.**

Covid-19 Audit Options

## Purpose

The New Zealand Farm Assurance Programmes (NZFAP and NZFAP Plus) provide confidence and certainty to the millions of consumers world-wide that the meat and wool produced from New Zealand's sheep, beef and deer farms is authentic, genuine, and safe. Collectively they provide assurances regarding integrity, traceability, animal health and welfare, people, farm and natural resources and biosecurity.

## History & Ownership

The New Zealand Farm Assurance Programmes (NZFAP and NZFAP Plus) are voluntary nation-wide farm assurance programmes. They were originally developed under the Red Meat Profit Partnership (RMPP), a joint Primary Growth Partnership initiative between the New Zealand red meat sector and the New Zealand Ministry for Primary Industries.

Both Programmes are now owned and managed by New Zealand Farm Assurance Incorporated (NZFAI).


They used to cultivate soil but now spray with glyphosate (mixed with fish and fulvic acid to reduce the rate) and direct drill. There is no soil disturbance and the soil is kept covered.

# Fit for a Better World

## Accelerating our economic potential

Ministry for Primary Industries
Manatū Ahu Matua



## The primary sector has agreed a vision for its future

In April 2018, the Minister of Agriculture established the Primary Sector Council to develop a shared direction for the food and fibres sector. The Council consulted widely, talking to hundreds of people from all parts of the sector and across rural communities to arrive at our first common vision and strategy. The vision, set out below, was launched by the Prime Minister at Lincoln University in December 2019.

## Vision

Certified organic maize in Northland.

- What scale do we wish to see,
- Cottage industry—each taking product to market?
- Industrial co-operation---but at
  scale.


- Raw value
- Or
- High profile?

# Infrastructure/mechanisation

Waikato crop Short variety.


LTD


NATURALLY PACKED WITH
HIGH PROTEIN, IRON & ZINC
I JUST GOT EVEN BETTER
Sunfed
CHICKEN FREE
CHICKEN
PLANT BASED
WILD MEATY CHUNKS
ORIGINAL
LEAN & CLEAN PLANT PROTEIN
MADE FROM
YELLOW PEAS
NON-GMO
100% WATER EXTRACTED
EXTRA VIRGIN OLIVE OIL
COLD-PRESSED
100% AUSTRALIAN OLIVES
GLUTEN FREE
SOY FREE
VEGAN
NZ MADE
NET
300g
4.5
HEALTHSTAR RATING
CHILLED

Bulk from press.
Great to eat as is.

A quick squeeze
in the hand and
add to a salad,
scrambled eggs,
mashed potato,
breakfast cereal/muesli.

20 seconds in the
coffee grinder or
whizz and
you have a
32% protein
whole food powder.

Use like you would
Salt and pepper!

Add it to baking,
Meatballs/rissoles,
Dips & dressings.
Soup or stew.

Only limited by
**Your**
Imagination!

iHemp Seed-Cake

eurofins

eurofins

| FATTY ACID PROFILE | RESULTS | | LOQ |
|---|---|---|---|
| **NU493** | **Fatty acid profile (as product basis)** | | |
| Omega 3 | 1.95 | g/100 g | - |
| Omega 6 | 5.60 | g/100 g | - |
| Saturated fat | 1.16 | g/100 g | - |
| Unsaturated fat | 8.53 | g/100 g | - |
| Monounsaturated fat | 0.98 | g/100 g | - |
| Polyunsaturated fat | 7.55 | g/100 g | - |
| Trans fat | <0.02 | g/100 g | - |

**Protein Content**

Protein 32.7 g/100 g  32.7% protein with husk in.

iHemp Seed-cake

eurofins

# Protein Content

Protein 32.7 g/100 g

eurofins

| | | RESULTS | | LOQ |
|---|---|---|---|---|
| o NW878 | **Arsenic** | | | |
| | Arsenic (As) | <0.05 | mg/kg | 0.05 |
| NU443 | **Ash Content (550°C 16-18 hrs)** | | | |
| | Ash | 6.95 | g/100 g | 0.1 |
| o NW880 | **Calcium** | | | |
| | Calcium (Ca) | 2250 | mg/kg | 1 |
| NU474 | **Carbohydrates** | | | |
| | Carbohydrates | 2.32 | g/100 g | 0.1 |
| UMFQH | **Detection of Listeria species** | | | |
| | Listeria Species | Not Detected | /25 g | - |
| UMEX2 | **Detection of Salmonella species** | | | |
| | Salmonella | Not Detected | /25 g | - |
| NU482 | **Dietary fibre** | | | |
| | Total dietary fibre | 40.9 | g/100 g | - |
| NU488 | **Energy** | | | |
| | Energy | 1280 | kJ/100 g | - |
| UM8CN | **Enumeration of Aerobic Bacteria** | | | |
| | Aerobic Plate Count 35°C | 70 | cfu/g | - |
| UMEPE | **Enumeration of Coagulase Positive Staphylococci** | | | |
| | Coagulase positive staphylococcus | <10 | cfu/g | - |

**Eurofins Food Analytics NZ Ltd**
35 O'Rorke Road, Penrose
NZ-1061 Auckland
NEW ZEALAND

**Phone** +64 9 579 2669
**Fax** +64 9 526 9122
**www.eurofins.co.nz**

| | | RESULTS | | LOQ |
|---|---|---|---|---|
| UMS9T | **Enumeration of Coliforms** | | | |
| | Coliforms 35°C | <10 | cfu/g | - |
| UMHLC | **Enumeration of Escherichia coli** | | | |
| | Escherichia coli | <10 | cfu/g | - |
| UMPJ8 | **Enumeration of Yeasts and Moulds** | | | |
| | Moulds | 10 | cfu/g | - |
| | Yeast | <10 | cfu/g | - |
| NU517 | **Fat Content** | | | |
| | Fat | 9.73 | g/100 g | 0.02 |
| o NW885 | **Iron** | | | |
| | Iron (Fe) | 211 | mg/kg | 0.5 |
| o NW886 | **Lead** | | | |
| | Lead (Pb) | <0.01 | mg/kg | 0.01 |
| o NW887 | **Magnesium** | | | |
| | Magnesium (Mg) | 6160 | mg/kg | 0.1 |
| o NW889 | **Mercury** | | | |
| | Mercury (Hg) | 0.004 | mg/kg | 0.002 |
| NU744 | **Moisture (98-100°C 5 hrs c/w)** | | | |
| | Moisture | 8.22 | g/100 g | 0.01 |
| NU797 | **Protein Content** | | | |
| | Protein | 32.7 | g/100 g | 0.1 |
| NU688 | **Sodium (ICP-OES)** | | | |
| | Sodium (Na) | <5 | mg/100 g | 5 |
| | Comment: Digestion method: Hotblock \| AOAC 984.27 mod. | | | |
| ◆ NU883 | **Sugar profile** | | | |
| | Fructose | 0.09 | %(m/m) | 0.05 |
| | Glucose | 0.19 | %(m/m) | 0.05 |
| | Lactose | <0.05 | %(m/m) | 0.05 |
| | Maltose | <0.05 | %(m/m) | 0.05 |
| | Sucrose | 2.04 | %(m/m) | 0.05 |
| | Total sugar (calc. as sum) | 2.32 | %(m/m) | 0.05 |

12 x chemo
and
4 haircuts
later.

iHemp-cake is **not** a medical product
and is not making claims.

The comments here are observations
Of a person who used iHemp-cake as
Part of the daily food intake.

iHemp-cake is a complex food and
can be enjoyed with a wide range
Of dishes or on its own.

“Perception is reality in the marketplace.”

*Peter Cullinane.*

“Let food be thy medicine, and let medicine be thy food.”

Hippocrates.

THE NZHIA
iHEMP
DISCOVERY & INVESTMENT
TOUR 2022
FOOD • FIBRE • HEALTH

# WHY HEMP?

This pioneering industry is on the edge of incredible growth. We're looking for farmers, growers, entrepreneurs and businesses who want to discover how to invest, upskill and become part of Aotearoa New Zealand's next billion dollar economy.

THE NZHIA
iHEMP
DISCOVERY & INVESTMENT
TOUR 2022
FOOD • FIBRE • HEALTH

# WHY HEMP?

How can hemp be used in FARMING:

- Farming as an alternative land use and cash crop plus phytoremediation, heavy metal removal and soil cleaning/ conditioning.
- Use for nitrogen uptake, and climate change mitigation.
- Crop rotation and break cropping in collaboration with other primary industries.


Sheep & Beef? What can hemp do for you?
THE NZHIA
iHEMP
DISCOVERY & INVESTMENT
TOUR 2022
FOOD • FIBRE • HEALTH
Regenerative Land Diversification
Sustainable Revenue Stream
Supporting a Healthy Food Chain
www.nzhia.com

# Aotearoa NZ Hemp Statistics

**NZ Hemp Industries Association Incorporated**

**Aotearoa New Zealand - iHemp Licence Statistics - Provided by MOH**

| Area Grown - Hectares | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|
| Auckland | 11.0 | 11.2 | 14.2 | 0.0 | - | - | - |
| Bay of Plenty | - | - | 19.4 | 0.6 | 12.5 | 0.0 | 0.1 |
| Canterbury | 7.2 | 0.2 | - | 130.0 | 168.4 | 813.9 | 446.6 |
| Capital and Coast | - | - | - | 5.0 | 12.0 | - | - |
| Counties Manukau | - | - | 0.2 | - | 0.5 | 0.4 | - |
| Hawkes Bay | - | - | - | 0.0 | 60.2 | 9.0 | 89.0 |
| Lakes | - | - | - | - | 10.0 | 0.0 | 0.6 |
| MidCentral | - | - | - | 11.0 | 202.8 | 40.4 | 14.9 |
| Nelson - Marlborough | 0.0 | 1.4 | 1.0 | 2.4 | 9.4 | 53.8 | 61.0 |
| Northland | - | - | 1.0 | 0.5 | 2.1 | 0.6 | 0.4 |
| Palmerston North - Mid central | - | - | - | - | - | - | - |
| Rotorua - Lakes | - | - | - | - | - | - | - |
| South Canterbury | - | 10.6 | 12.6 | 12.0 | 112.7 | 197.7 | 143.0 |
| Southern | 1.0 | - | 32.0 | 3.3 | 19.0 | 72.0 | 75.8 |
| Tairawhiti | 1.7 | 2.5 | 0.1 | 10.3 | 26.2 | 0.2 | 7.2 |
| Taranaki | - | - | 3.7 | 0.5 | 0.5 | 1.1 | 8.3 |
| Waikato | 0.4 | - | - | 38.0 | 1.0 | 58.6 | 8.0 |
| Wairarapa | 50.2 | 12.1 | 17.9 | 30.0 | 64.3 | 31.5 | - |
| Waitemata | 0.0 | 4.1 | 4.0 | 0.0 | 0.5 | - | 0.0 |
| West Coast | - | - | - | 2.0 | 4.3 | 4.7 | 6.0 |
| Whanganui | - | - | - | 5.2 | 40.0 | 51.0 | - |
| **Total Area Grown** | **71.6** | **42.1** | **106.2** | **250.8** | **746.4** | **1,334.9** | **860.7** |

THE NZHIA
iHEMP
DISCOVERY & INVESTMENT
TOUR 2022
FOOD • FIBRE • HEALTH

# WHY HEMP?

How can hemp be used in FOOD INDUSTRY:

- Seeds for food and utilising local circular economy by- product streams to make new and innovative products. Hemp seed nutritional products for humans and animals as well as seed multiplication for northern hemisphere hempseed companies.
- Future uses of hemp leaf, sprouts and roots.

# Value Chain

Growers and Cultivators

Testing and Development

Processors and Manufacturers

Distributors and Consumers

Matching Supply with Demand, to Scale the Industry

THE NZHIA
iHEMP
DISCOVERY & INVESTMENT
TOUR 2022
FOOD • FIBRE • HEALTH

# WHY HEMP?

How can hemp be used in the FIBRE INDUSTRY:

- Investment in decortication and primary processing would enable enterprises to scale and enter markets for high and low tech industrial uses.
- Collaboration with other primary sectors, such as forestry and wool.


*Hemp Construction Materials*

THE NZHIA
iHEMP
DISCOVERY & INVESTMENT
TOUR 2022
FOOD • FIBRE • HEALTH

# WHY HEMP?

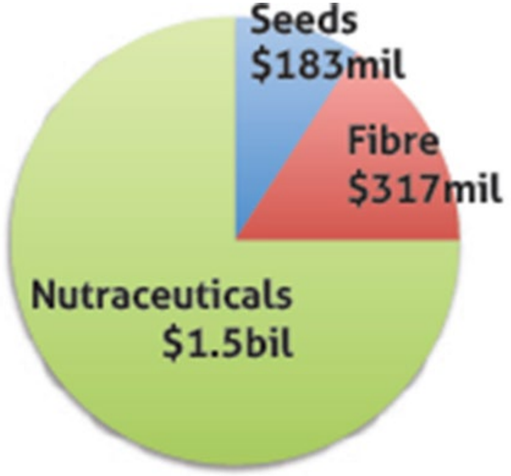
How can hemp be used in the HEALTH INDUSTRY:

- Female plant cultivation for the emerging health and wellness industry, utilising cannabinoids, terpenes, and flavonoids as high-value fractions from locally grown crops for global niche markets.
- Working with Mānuka, Kawakawa and other native botanicals grown in New Zealand.

# The NZHIA Why

A MPI 2021 Sapere report predicts Industry to grow from 3-5 million now to between $11 to $774 million by 2030. Their preferred scenario 2 gave a prediction of $30 million by 2030

But the NZHIA's Senario 2 in our investor report highlights a $2 billion opportunity by 2030 - We just need the right interpretation of the regulations


NZHIA Scenario 2

$2 Billion

THE NZHIA
iHEMP
DISCOVERY & INVESTMENT
TOUR 2022
FOOD • FIBRE • HEALTH

# BE IN TO WIN!


THE NZHIA
iHEMP
DISCOVERY & INVESTMENT
TOUR 2022
FOOD • FIBRE • HEALTH

# JOIN THE NZHIA

## BE IN TO WIN

Sign up as an NZHIA member on the tour and go into the draw to win a Hark & Zander Luxury Gift Box

HARK & ZANDER

Hemp products valued at $445


Terms & conditions apply. See www.nzhia.com

THE NZHIA iHEMP DISCOVERY & INVESTMENT TOUR 2022

FOOD • FIBRE • HEALTH

# RESOURCES

## The Next Step

Join the NZHIA so we can keep in touch

- We need a:
  - Hemp Industry Strategy Reset
  - Capability Development Program

Callahan Innovation: Capability Road Maps

Tupu.nz: Fact sheets for industrial hemp

CallaghanInnovation
New Zealand's Innovation Agency

Te Puni Kōkiri
MINISTRY OF MĀORI DEVELOPMENT


*Coming soon ….a new community building portal*

THE NZHIA iHEMP DISCOVERY & INVESTMENT TOUR 2022

FOOD • FIBRE • HEALTH

# WITH THANKS

With thanks to our speakers from

NEXT

OrganicAg

Hill Laboratories
TRIED, TESTED AND TRUSTED

Global Canvas
Connecting Aotearoa and the World Through Hemp

THE NZHIA iHEMP DISCOVERY & INVESTMENT TOUR 2022

FOOD • FIBRE • HEALTH

# WITH THANKS

With thanks to our sponsors

AGMARDT

NZHIA Food. Fibre. Health.

and a special thank you for tonight's spot prize sponsors

HEMP NEW ZEALAND

pure heart AOTEAROA hemp's golden gift

THE NZHIA
iHEMP
DISCOVERY & INVESTMENT
TOUR 2022
FOOD • FIBRE • HEALTH

# GET INVOLVED - JOIN

NZHIA
Food. Fibre. Health.

Our mission is to promote the growth and development of the industrial hemp industry in New Zealand in all aspects. Now is the perfect time to become a member and be part of this growing industry.

**Join at www.nzhia.com**

- Growers and Cultivators
- Testing and Development
- Processors and Manufacturers
- Distributors and Consumers