

ADAPTED FROM A VERSION BY RURAL INDUSTRIES RESEARCH & DEVELOPMENT CORPORATION, ACT AUSTRALIA

THE NZHIA

iHEMP

DISCOVERY & INVESTMENT

TOUR 2022

FOOD • FIBRE • HEALTH



NELSON/TASMAN

Exploring hemp's
economic and
sustainability potential:
**Regional strengths and
how iHemp fits in**

SPONSORED BY:

AGMARDT



Mahitahi CoLab

Monday 25 July 2022

PRESENTED BY RICHARD BARGE

SPEAKERS



RICHARD BARGE
(NZHIA)

The NZHIA Chair presents a history of hemp in Aotearoa New Zealand and a new iHemp industry for Nelson/Tasman.



JO SAY
(HEMP BUILDING ASSOCIATION)

Founder of the Hemp Building Association of NZ. Jo is developing NZ's first hempcrete subdivision, in Nelson.



BRIAN KINDILIEN
(PURO NZ)

NZ Medicinal Cannabis Industry –
A Grower's Perspective.

PROGRAM

- 7.30 Welcome
- 7.50 NZHIA Introduction and History
- 8.10 Puro Growing the future – post harvest a case study
- 8.30 HBA Hemp building and construction
- 9.00 NZHIA Business plans - Why
- 9.20 Panelists Question & Answers
- Till Close

NZ Hemp Industries Association iHemp and History



Growers and Cultivators



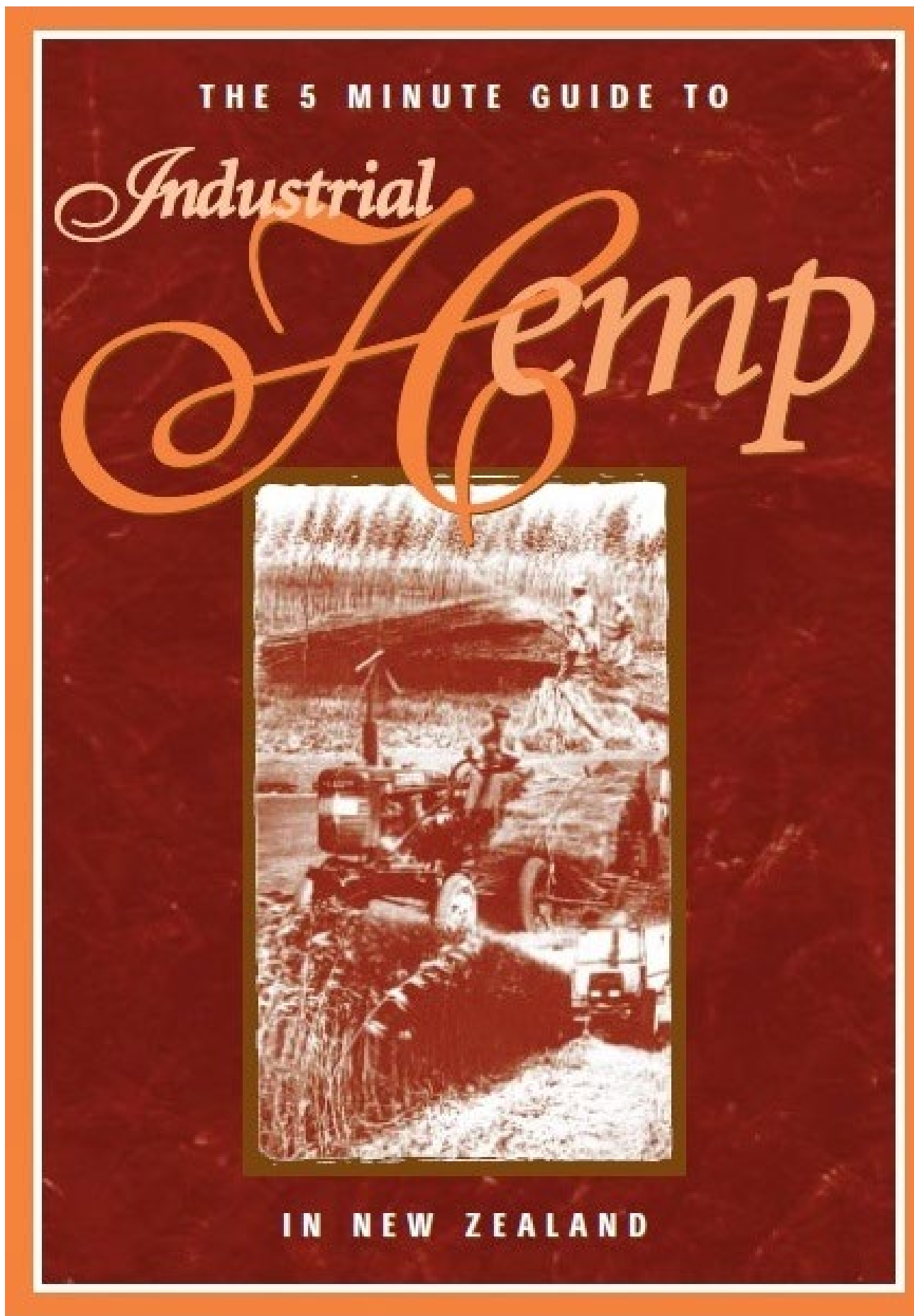
Testing and Development



Processors and Manufacturers



Distributors and Consumers




NZ HEMP EXPORT DRIVEN INVESTOR REPORT:
 \$2 BILLION AND
 20,000 REGIONAL JOBS BY 2030
 JUST NEEDS THE NOD...



G R O W T H

FULL REPORT

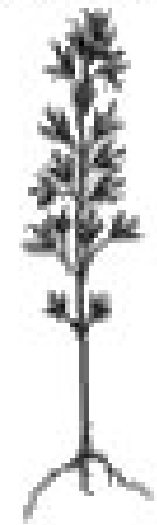




SATIVA



INDICA



RUDERALIS



SATIVA



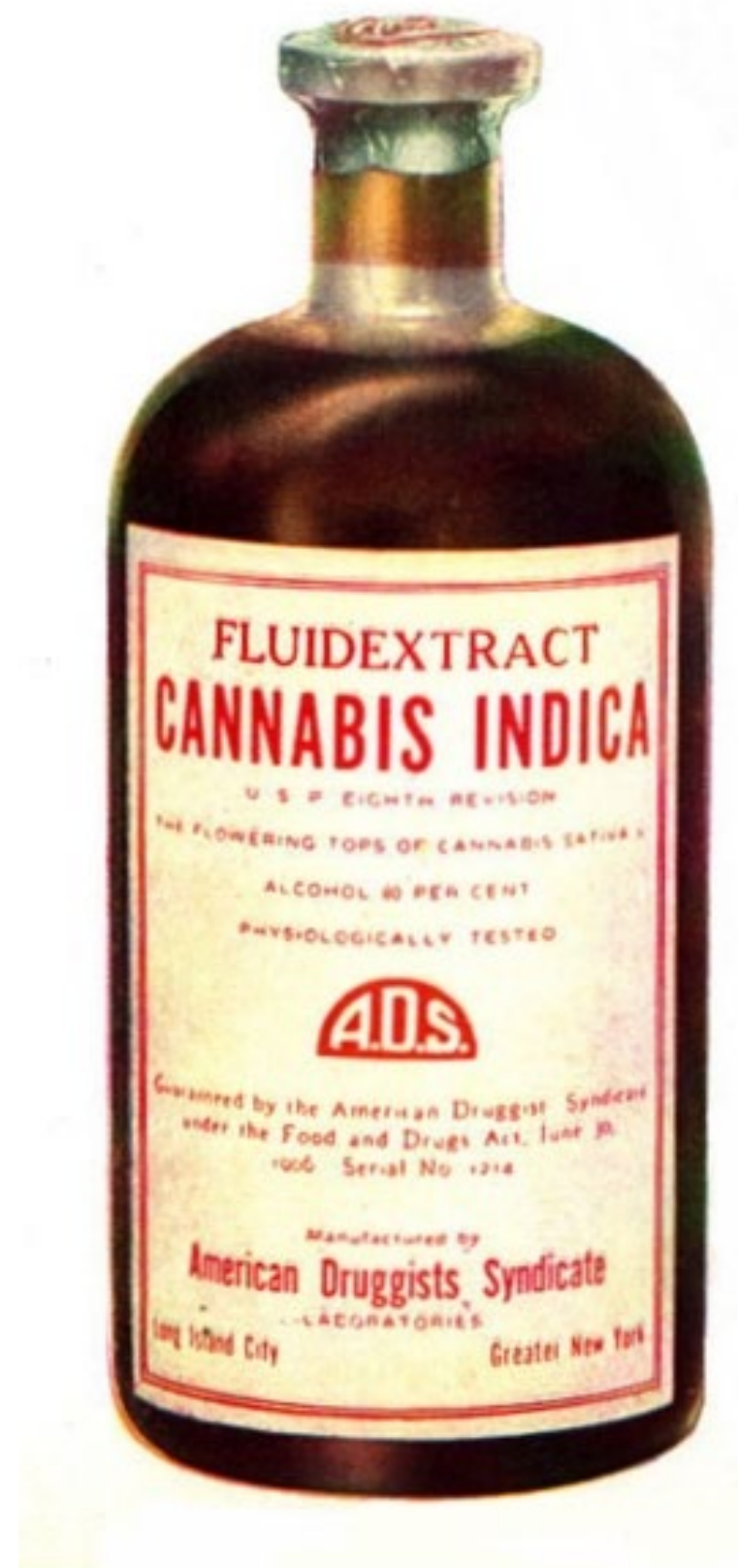
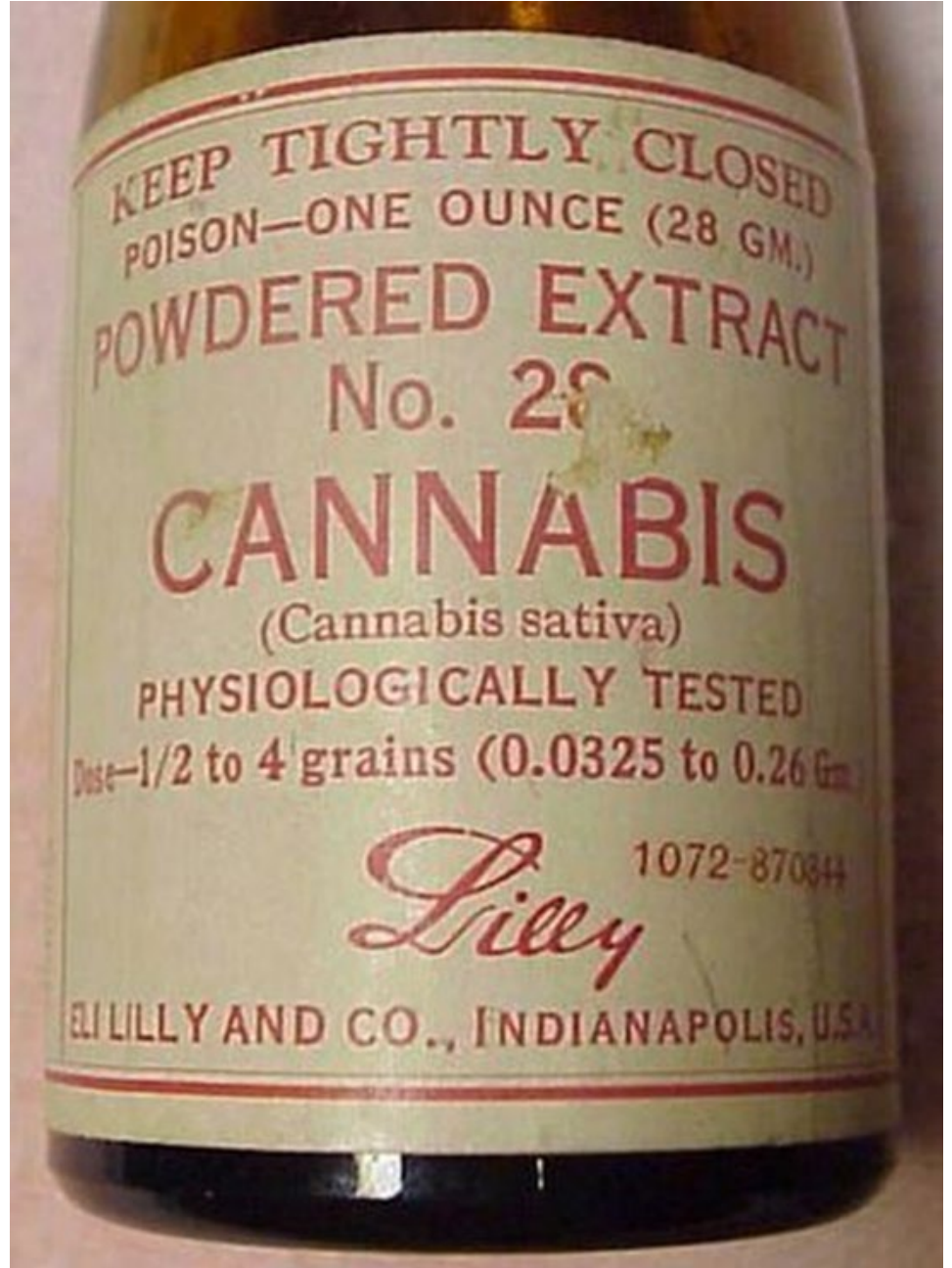
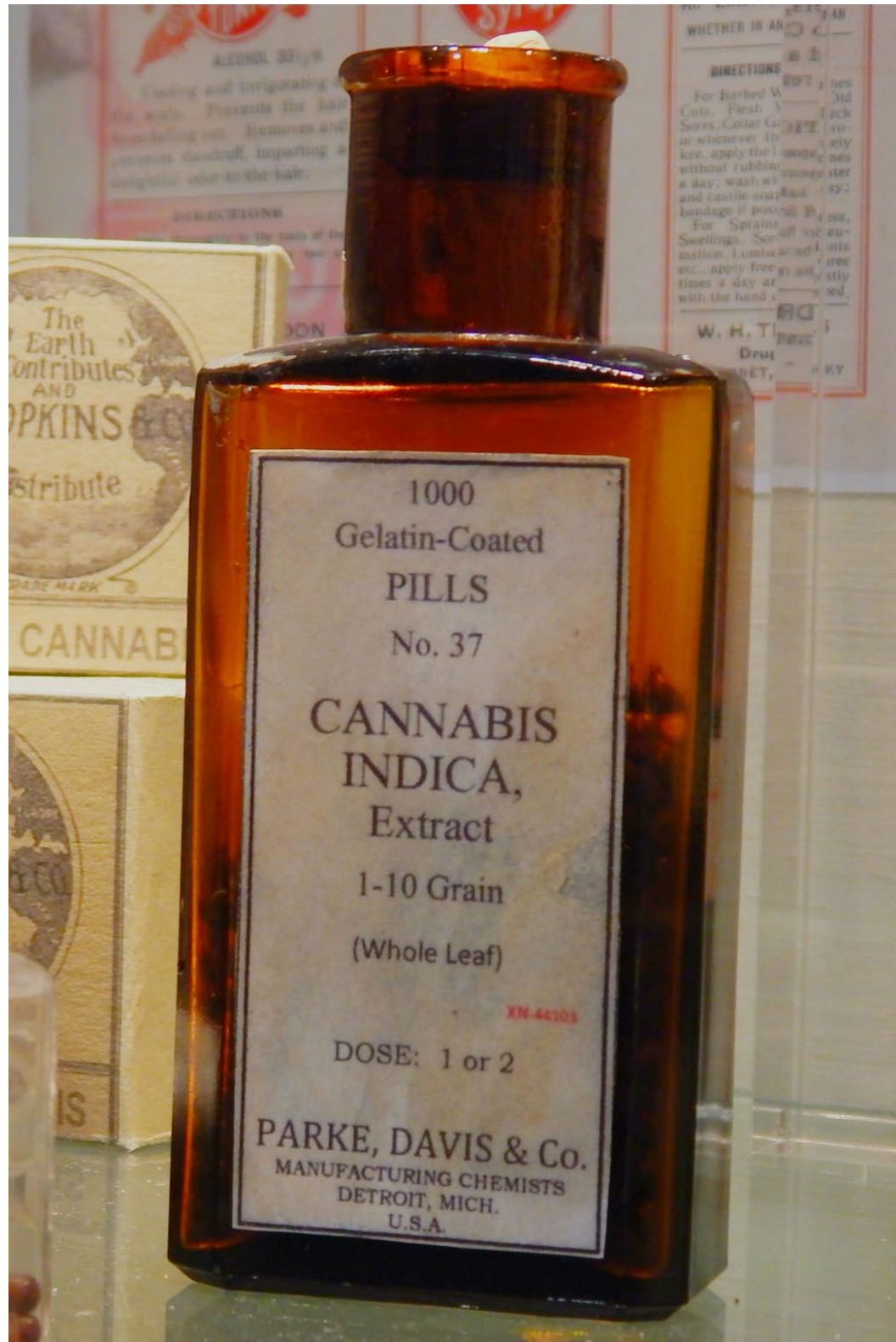
INDICA



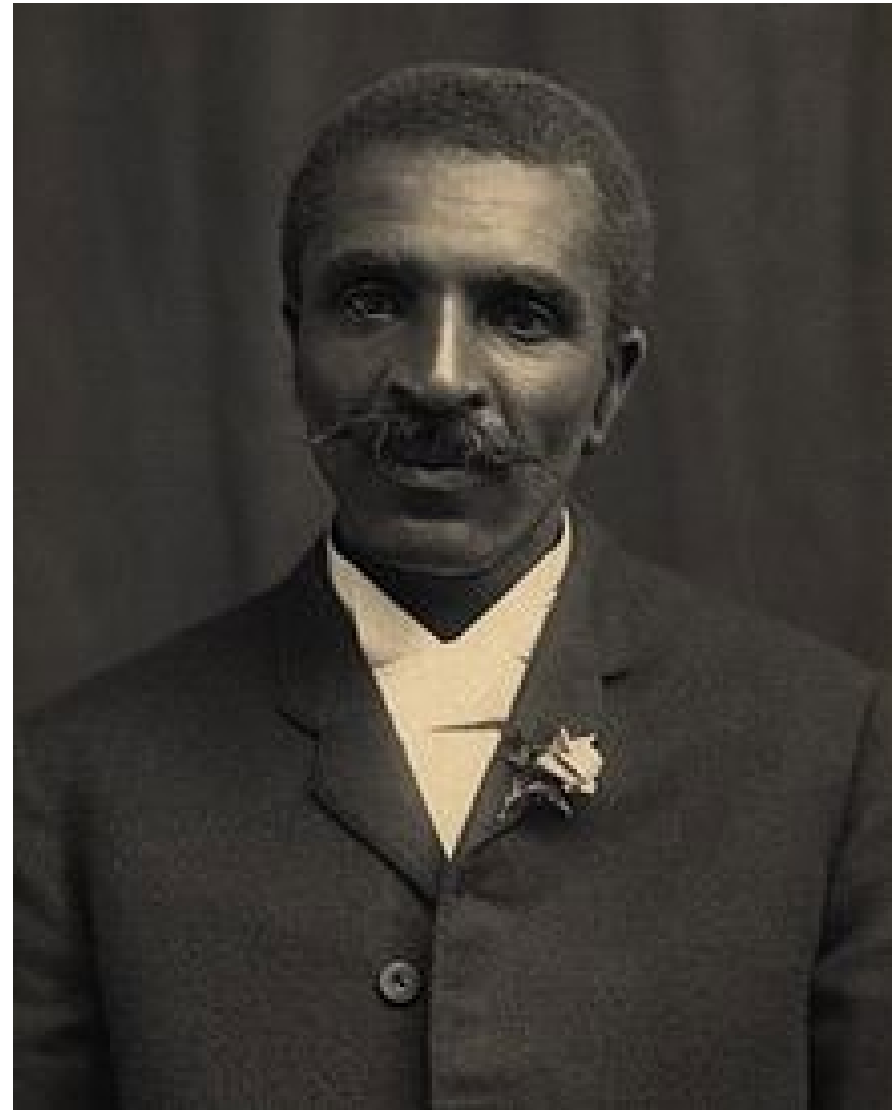
RUDERALIS







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



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 Investiga-
 tions, 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*

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Page	Page
The Production and Handling of Hemp Hurds, by Lyster H. Dewey:	The Manufacture of Paper from Hemp Hurds, by Jason L. Merrill:
What Hemp Hurds are 1	Introduction 7
Pith, Wood, and Fiber 2	Factors Justifying an Investigation of Hemp Hurds 8
Character of Hurds Affected by Retting 2	Character of the Material 11
Proportion of Hurds to Fiber and Yield per Acre 3	Character of the Tests 12
Hurds Available from Machine-Broken Hemp 3	Operations Involved in a Test 13
Present Uses of Hemp Hurds 4	Description of Tests 16
Present Supplies of Hurds Available 5	Comparison of the Tests and Commercial Practice 21
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WASHINGTON
 GOVERNMENT PRINTING OFFICE
 1916

**BILLION-
 DOLLAR
 CROP**

petition with multi-produced foreign fiber while paying farmers \$1000 a ton for hemp as it comes from the field. From the farmer's point of view, hemp is an easy crop to grow and will yield from three to six tons per acre on any land that will grow corn, wheat, or oats. It has a short growing season, so that it can be planted after other crops are in. It can be grown in any state of the union. The long roots penetrate and break the soil to leave it in perfect condition for the next year's crop. The dense bank of leaves, eight to twelve feet above the ground, shades and cools. Two successive crops are enough to reclaim land that has been abandoned because of Catalpa thistles or scrub grass.

Under old methods, hemp returned to paper about

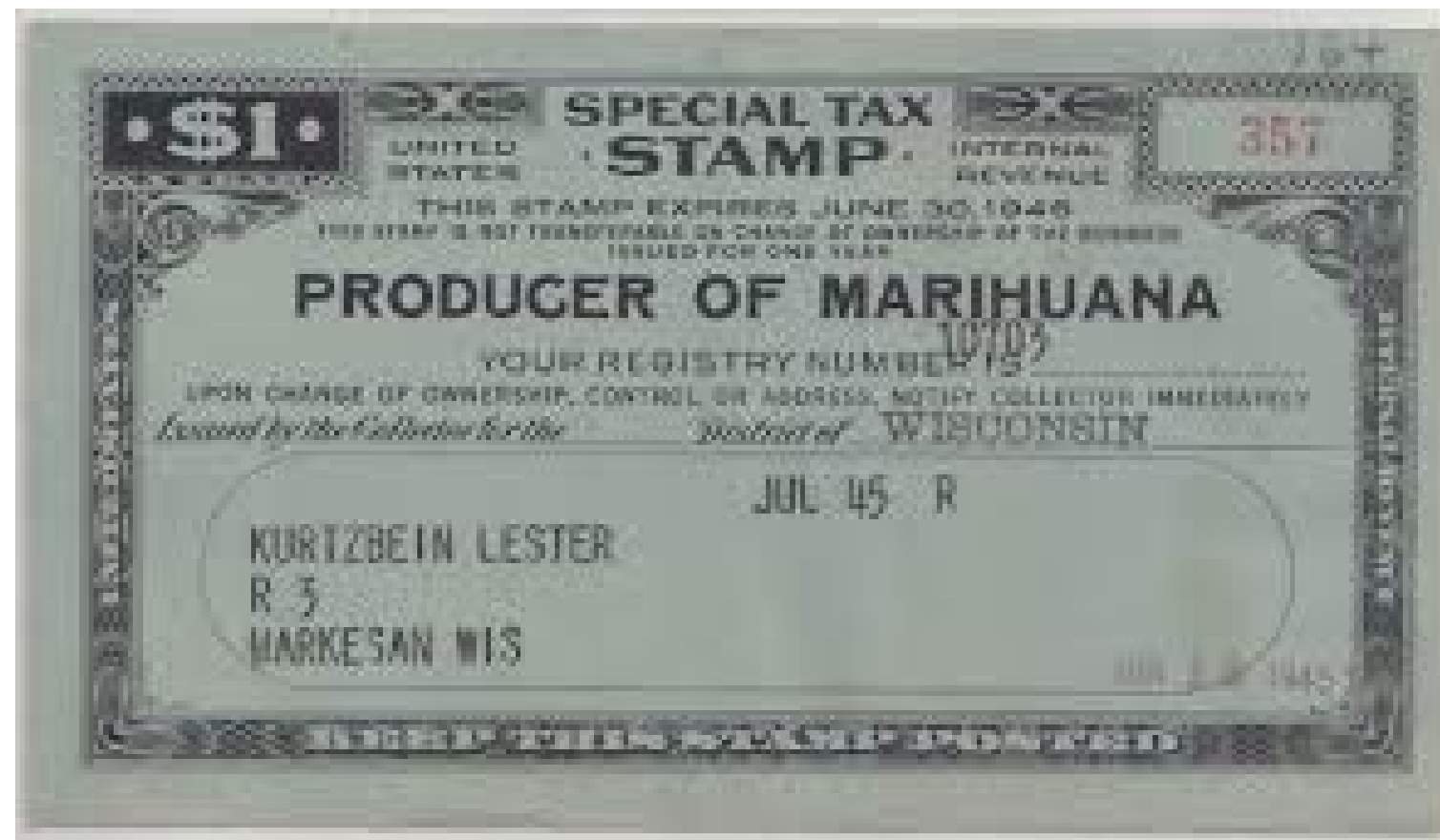
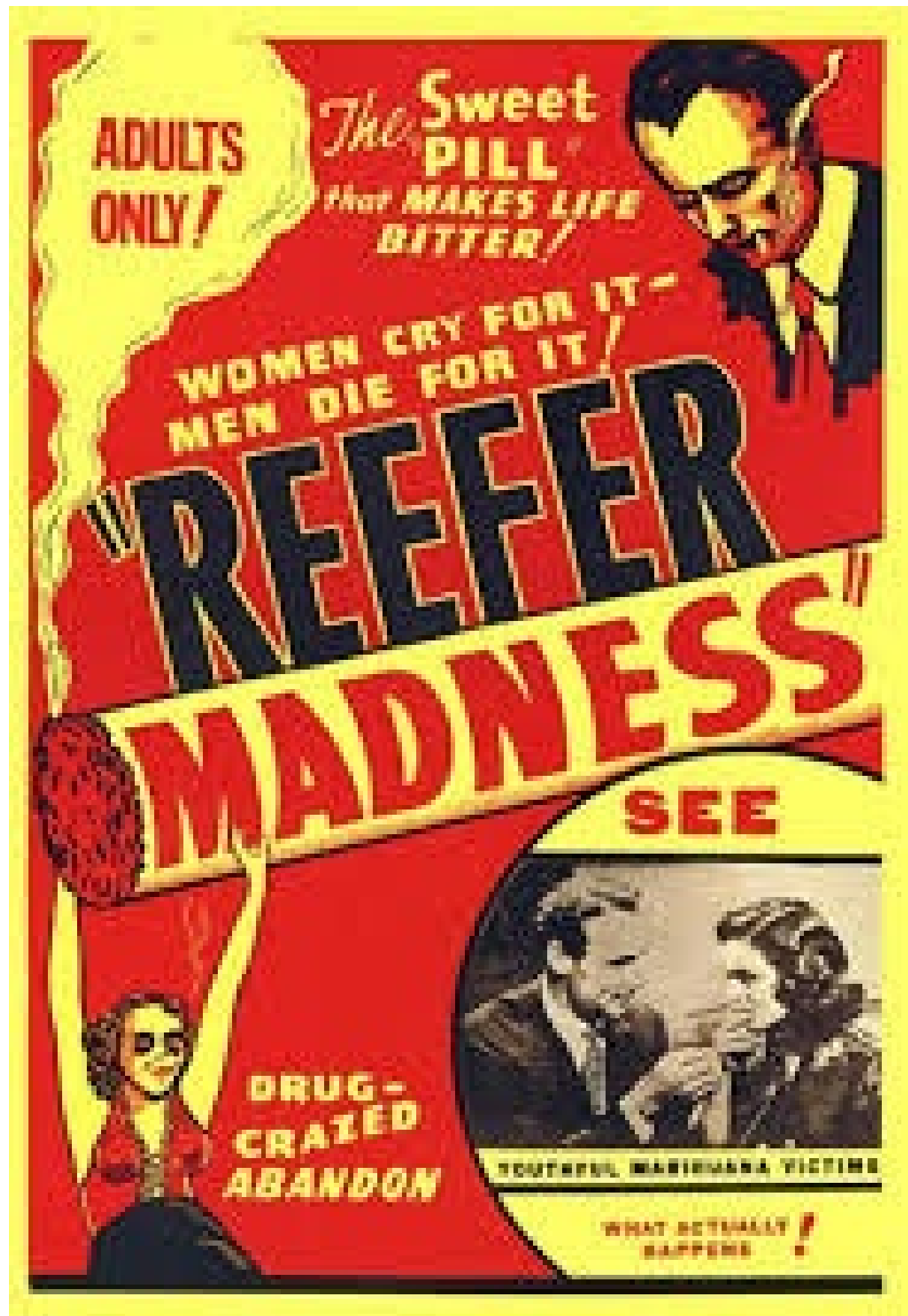


Fig. 1. Machine made of hemp fiber made from hemp. Bottom, horizontal hemp and a grade hemp. Hemp grows luxuriantly in France.



FARMERS' BULLETIN No. 1935
 U. S. DEPARTMENT OF AGRICULTURE







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.

Photo: U.S.D.A. by Forney/Re

The Humorous Hemp Primer

The cover shows the male plant eager to pollenate the willing female.

HERER - BROCKERS - KATALYSE

DIE WIEDERENTDECKUNG DER NUTZPFLANZE CANNABIS MARIHUANA

Hanf

EINE DER ÄLTESTEN KULTURPFLANZEN DER ERDE KÖNNTE HELFEN, DIE MENSCHEN AUSREICHEND MIT KLEIDUNG, PAPIER, ÖL, BRENNSTOFF, NAHRUNG, BAUMATERIAL UND VIELEN MEDIZINEN ZU VERSORGEN

ZWEITAUSENDEINS

The Lustrous HempFiber

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Steinhau

Page 13

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.



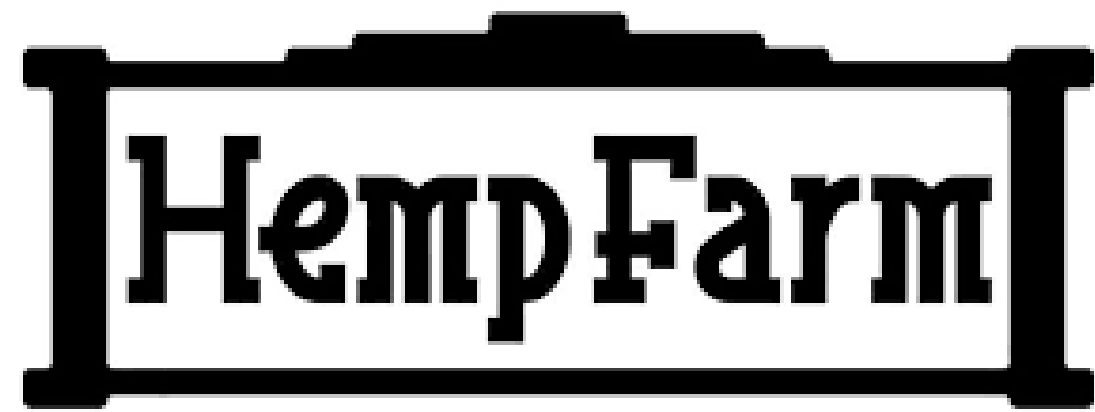
Misuse of Drugs (Industrial Hemp) Regulations 2006

(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.





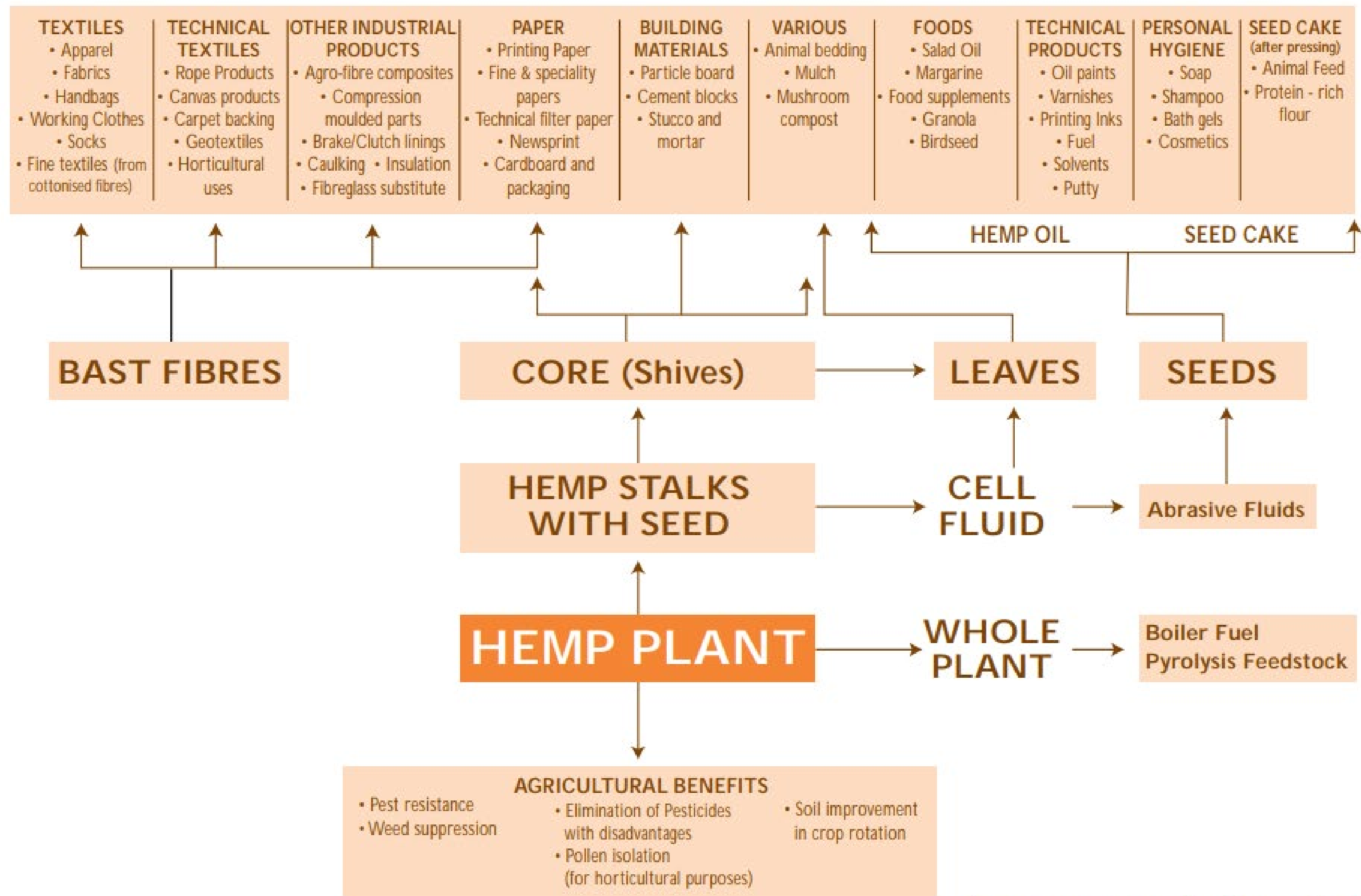
hempfarm.co.nz





Hemp Construction Materials





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BRIAN KINDILIEN
(PURO NZ)

NZ Medicinal Cannabis Industry –
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Kia ora

New Zealand iHemp
Discovery and Investment
Tour 2022



We are Puro New Zealand,
Growing the Future

Topic: Post Harvest / A Case Study

By Brian Kindilien

Puro New Zealand Overview

An established company with a premium brand, a world-class product and proven management

Specialist grower of medicinal cannabis with two cultivation facilities and significant capacity to scale

One of few large-scale commercial growers worldwide with organic accreditation

Government funding has been secured to fast-track production and accelerate growth

A strong business model within an industry that has high financial and regulatory barriers to entry

Two proven commercial scale outdoor harvests

**Puro Outdoor Grown,
Trimmed, Dried Flower
Harvested:**

2022 – 5 tonnes

2021 – 2.8 tonnes

Our sites: Kēkerengū

- East coast with Pacific Ocean aspect
- Currently >10Ha outdoor cultivation
- BioGro Certified Organic #6182
- EU (CU) GACP accredited
- High potency CBD, CBG and unique cultivars
- Premium manicured flower, and milled biomass.



Our sites: Waihopai

- Aotearoa's famous Marlborough wine region
- Top of the South Island
- Home of Puro's indoor controlled environment agriculture (CEA) facilities
- High potency THC, CBD and 1:1 cultivars
- Premium manicured flower, trim and biomass



Puro's Accreditations & Licences

BioGro Accredited - Kēkerengū



EU (CU) GACP Accredited - - Kēkerengū



Ministry of Health Licence	Status	Duration / Renewal	Description
Nursery activity (Medicinal cannabis Agency)	Obtained and expired July 2021. Not currently in use.	Annual renewal	Allows purchase, import, possession and supply of cannabis seed to a medicinal cannabis licence holder with the 'cultivation' activity specified.
Cultivation activity (Medicinal cannabis Agency)	Obtained for Kēkerengū Obtained for Waihopai	Annual renewal	Allows cultivation breeding research, the purchase, import and supply of cannabis seeds / plants and the commercial cultivation of cannabis to produce starting material for therapeutic use. All parties must be appropriately licensed.
Supply activity (Medicinal cannabis Agency)	Obtained for Kēkerengū	Annual renewal	Allows supply and exporting of medicinal cannabis starting material to appropriately licensed parties.
Licence to export controlled drugs (Medicines Control)	Applied for prior to export	Application per consignment	Allows the export of up to 4 products per consignment. A licence to import must be provided by the destination country before a licence to export controlled drugs can be issued.

Harvest - Overview

- Benefits of achieving consistency and repeatability growing a natural active pharmaceutical ingredient (API) outdoors
 - Reduced cost
 - Scalability
- Challenges
 - Consistency
 - Compliance
 - Nature



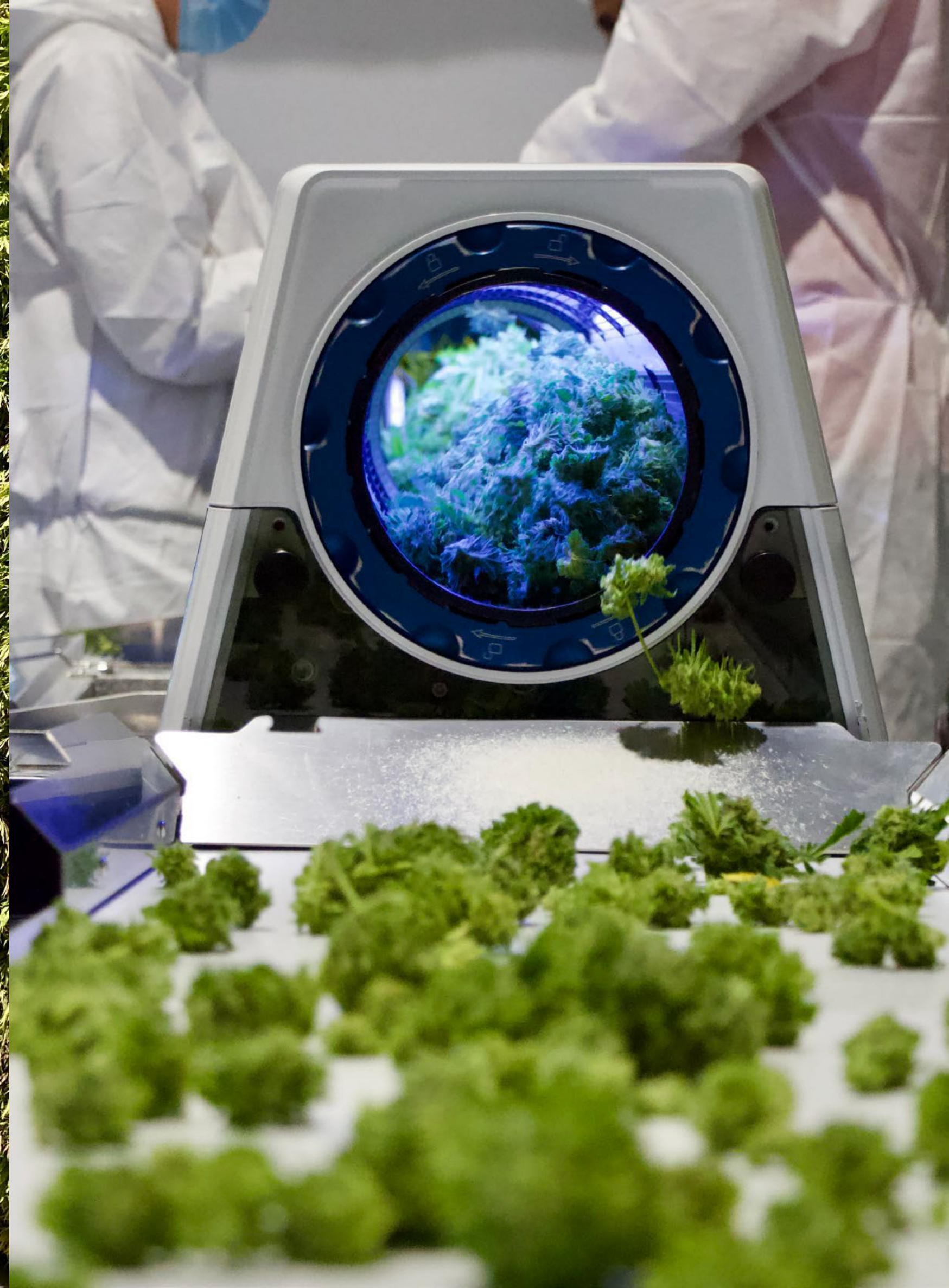
Harvest - Standardisation

- Consistency - top flower, lower plant material, defoliation, moisture, export readiness
- Processes – Drying, trimming, milling, packaging, testing... and cleaning
- Optimising processes for best outcome requires measurement, recording, experimentation, modelling and simulation



Harvest – Environment

- Risks/rewards of an outdoor grow
- Cultivar differences (origin CoAs v. outcomes)
- Inputs – Fertigation, soil conditions
- Plant Management – Trimming strategies, canopy exposure
- Technology – Weather monitoring, fertigation, test equipment



Harvest - Scale

- Large volume growing – Suppling for the current demand
- Small batch cultivation for testing – Knowing what works in your environment
- Labour impact – Overlapping with existing industry harvests (wine, hops, etc.) allows sharing of workers, reduces cost



Kēkerengū Outdoor Cultivars 2022

Waihopai Indoor Cultivars 2022

Puro Cultivar	Dominant Cannabinoid	Harvested dry weight
	(Percent %)	(Kgs)
Outdoor		
PuroCann-C018	CBD – 6 - 8%	2,098
PuroCann-C019	CBD – 7 - 9%	1,116
PuroCann-C020	CBD – 8.20%	633
PuroCann-C022	CBD – 8.90%	350
PuroCann-C023	CBD – 8.40%	283
PuroCann-C024	THC – 16.30%	23
PuroCann-C025-1	THC – 10.80%	37
PuroCann-C025-2	THC – 19.40%	32
Indoor		
PuroCann-C008	THC – 13.90%	20
PuroCann-C010	THC – 12.1%	1
PuroCann-Trim blend	THC – 6%	10
PuroCann-C030	THC – 25-27%*	10

* Per cycle (3 per year), per room (3 rooms)



Tēnā koutou

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Business Development Manager
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brian@puro.co.nz



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HBANZ

Hemp Building Association NZ









Embodied carbon of construction:

Construction = 20% of NZ's greenhouse gas emissions over the full life cycle of buildings - embodied + operational

1 cubic metre of **concrete** produces 300kg CO₂

1 cubic metre **hempcrete** removes 100kg CO₂

Each acre of hemp **removes** 10 tonnes of carbon

















Tradical®

Building lime innovation

Tradical® HB
Hemp Binder

 **Lhoist UK**
A Lhoist Group Company

Tradical® HB
Hemp Binder

 **Lhoist UK**
A Lhoist Group Company

Tradical®



Building lime innovation

Tradical HB

Hemp Binder

g lime innovation

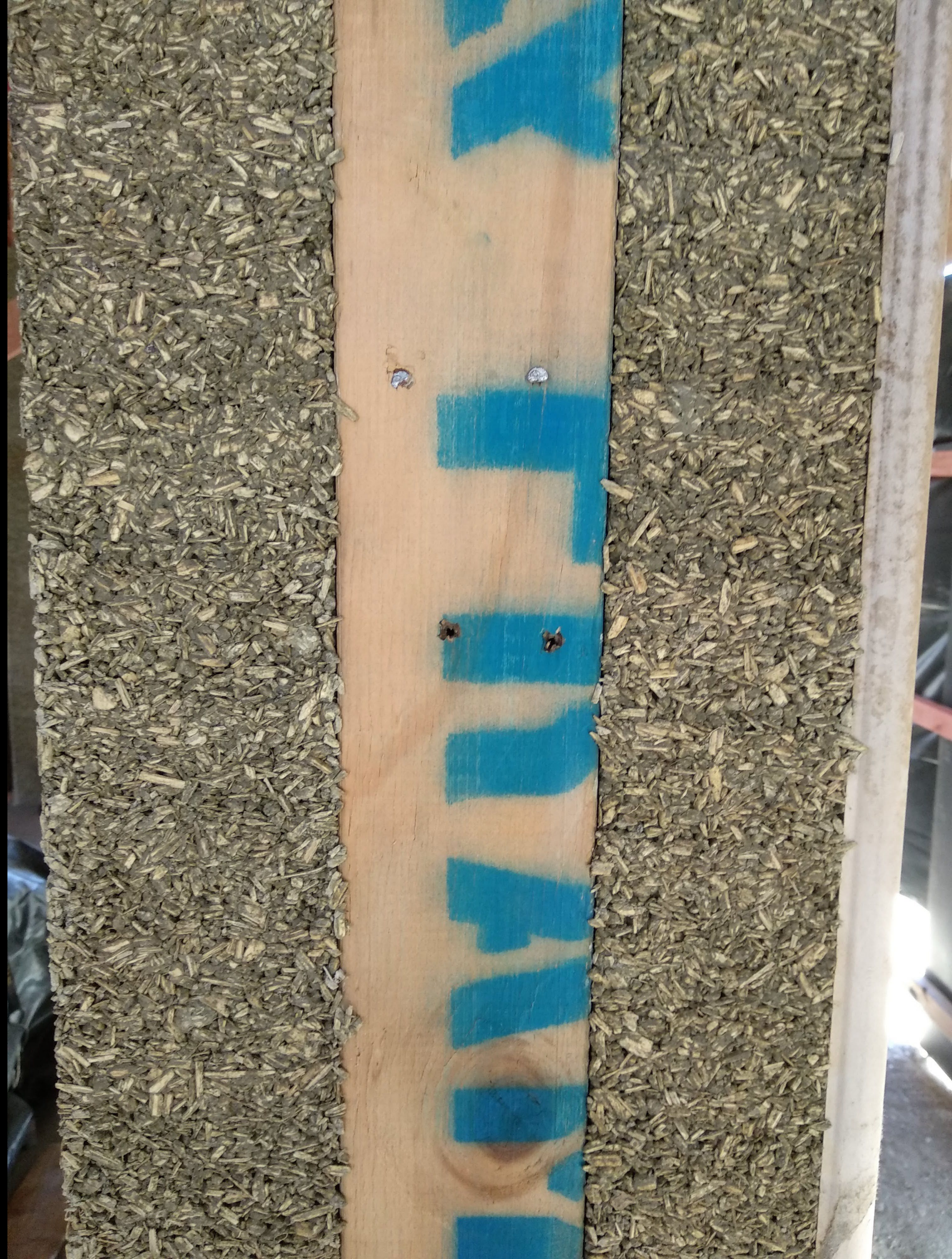
HT® BT





















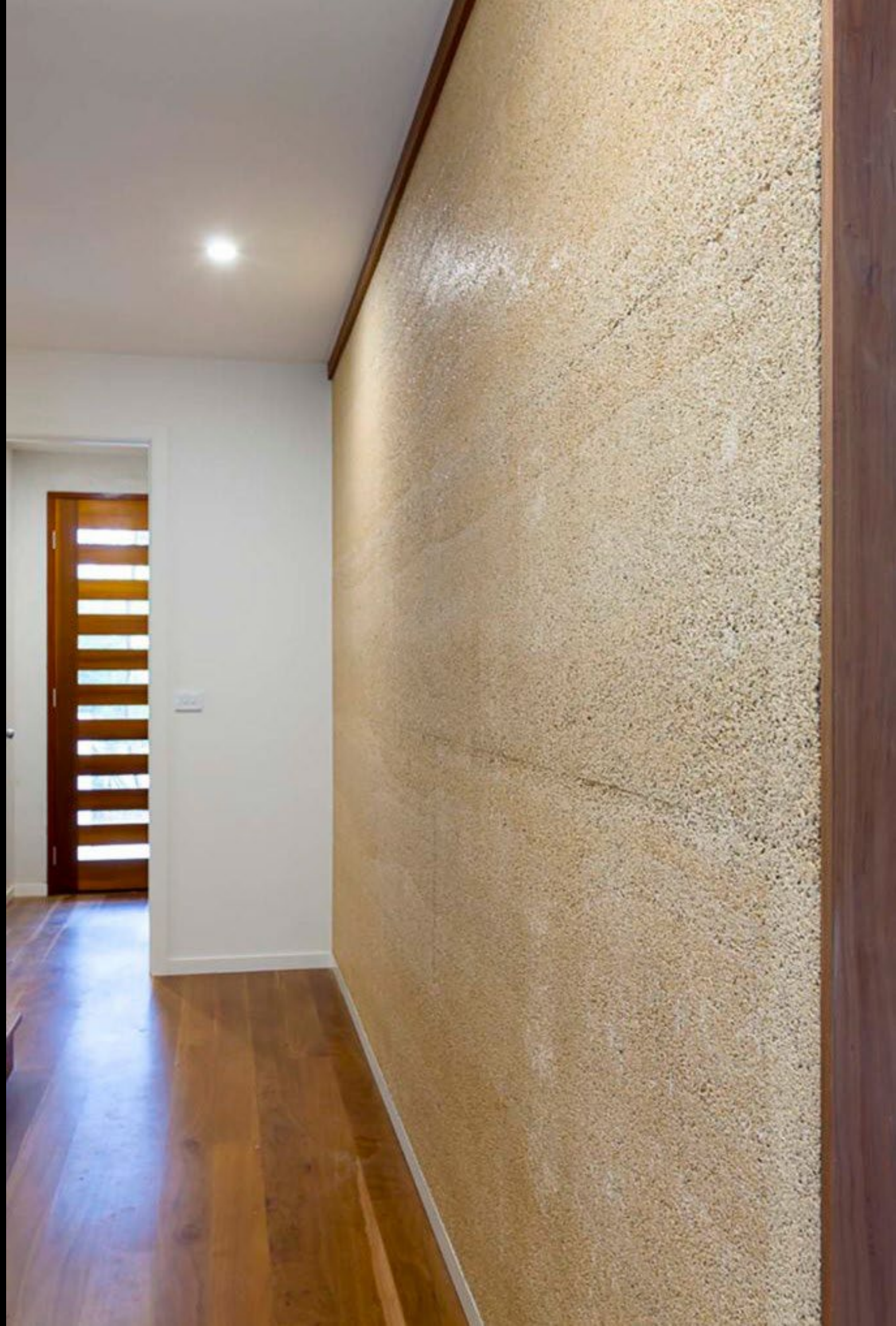
What are the benefits of living in a hemp house?

- *Carbon negative construction material (carbon sink)
- *High Insulation R value combined with strong thermal mass performance = minimal heating / cooling (very low operational CO2)
- *Natural hygroscopic capacity to regulate humidity
- *Non - flammable
- *Good seismic performance
- *Light weight (compared to concrete)





























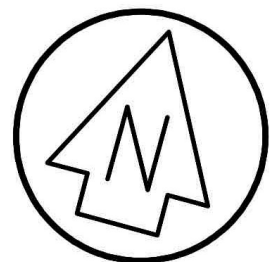






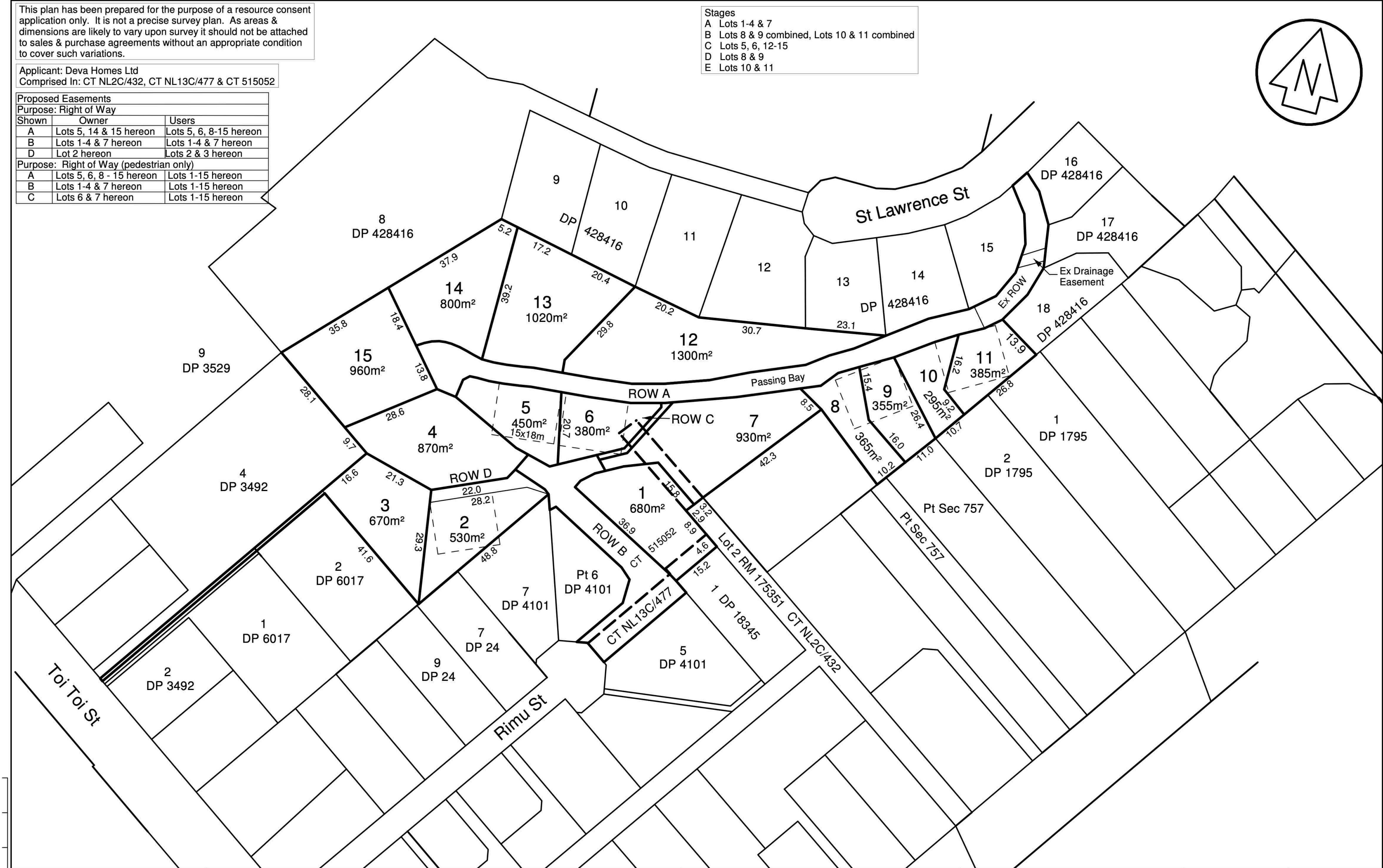
This plan has been prepared for the purpose of a resource consent application only. It is not a precise survey plan. As areas & dimensions are likely to vary upon survey it should not be attached to sales & purchase agreements without an appropriate condition to cover such variations.

Stages
 A Lots 1-4 & 7
 B Lots 8 & 9 combined, Lots 10 & 11 combined
 C Lots 5, 6, 12-15
 D Lots 8 & 9
 E Lots 10 & 11



Applicant: Deva Homes Ltd
 Comprised In: CT NL2C/432, CT NL13C/477 & CT 515052

Proposed Easements		
Purpose: Right of Way		
Shown	Owner	Users
A	Lots 5, 14 & 15 hereon	Lots 5, 6, 8-15 hereon
B	Lots 1-4 & 7 hereon	Lots 1-4 & 7 hereon
D	Lot 2 hereon	Lots 2 & 3 hereon
Purpose: Right of Way (pedestrian only)		
A	Lots 5, 6, 8 - 15 hereon	Lots 1-15 hereon
B	Lots 1-4 & 7 hereon	Lots 1-15 hereon
C	Lots 6 & 7 hereon	Lots 1-15 hereon



REV	AMENDMENT	DATE

NOTES
 (1) VERIFY ALL DIMENSIONS ON SITE.
 (2) DO NOT SCALE FROM DRAWING.
 (3) COORDINATES IN TERMS OF NZGD2000 NELSON CIRCUIT.
 (4) AREAS ARE NETT AREAS.

JOB TITLE:
Deva Homes Ltd
Rimu Street
Nelson

RESOURCE CONSENT APPLICATION PLAN
Lots 1-15 Being Proposed
Subdivision of Lot 1 DP 18547,
Lot 19 DP 428416 & Lot 1 RM175351

planscapes
 (nz) ltd.
 Surveying and Resource Management

94 Selwyn Place |
 PO Box 99, NELSON 7040 |
 03 539 0281 |
 enquires@planscapes.co.nz |
 www.planscapes.co.nz

COUNCIL: Nelson City Council	SCALE: 1:1000 @ A3
JOB NO: 1109	DATE: Apr 2018
DRAWN: P Newbury	REVISION: A
SHEET NUMBER: 1 OF 1	



HBANZ

Hemp Building Association NZ

Hemp Building Association of New Zealand

www.HBA.NZ

(Resources / useful links / contact info)

Facebook group

(Upcoming hemp building workshops + events)

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22

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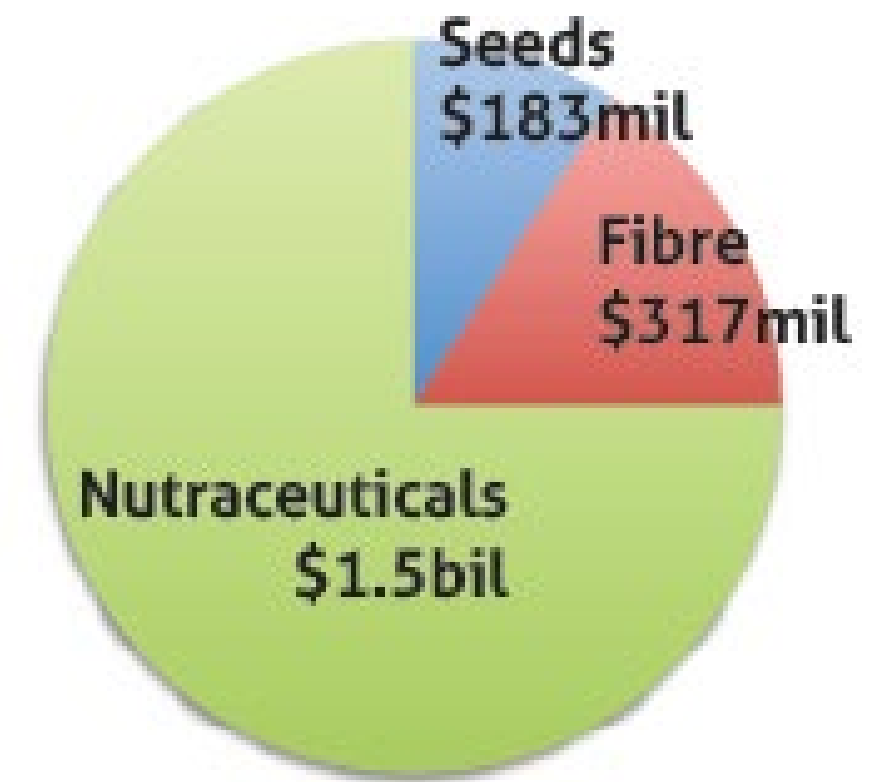
WHY HEMP?

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 NZHA WHY

A MPI 2021 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 Senario 2 \$2 Billion

Value Chain



Growers and
Cultivators



Testing and
Development



Processors and
Manufacturers



Distributors and
Consumers

Matching supply with sector demand, to scale the industry
Where are the gaps and opportunities?

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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.

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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.

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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.

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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.

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Be part
of the
tour &
WIN!

T & C's apply, see nzhia.com

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Event
spot
prizes



Gift
basket
draw



All registered participants will go into the draw to win a hemp gift basket!

*T & C's apply, see nzhia.com

Valued
at over
\$300



HEMP
NEW ZEALAND



pure heart
AOTEAROA
hemp's golden gift

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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.

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](#)

CallaghanInnovation
New Zealand's Innovation Agency

Tupu.nz: [Fact sheets for industrial hemp](#)

 **Te Puni Kōkiri**
MINISTRY OF MĀORI DEVELOPMENT

It's time to unlock hemp's potential for Aotearoa.

SUSTAINABILITY



NUTRITION



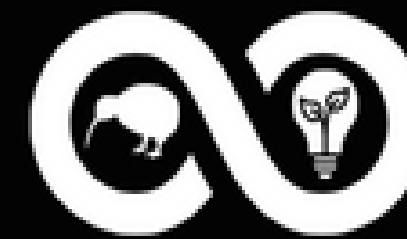
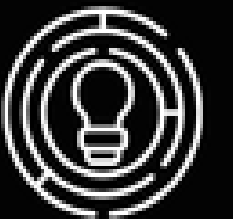
BIOMATERIALS



HEALTH



INNOVATION



**Aotearoa New Zealand
Hemp Alliance**

Coming soon ... a new community building portal

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TOUR **20**
22

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WITH THANKS

With thanks to our speakers from



PURO

Growing the future.

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WITH THANKS

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



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GET INVOLVED - JOIN



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