THE NZHIA HE NZHIA DISCOVERY & INVESTMENT TOUR 20 1

FOOD • FIBRE • HEALTH

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BLENHEIM

Exploring hemp's economic and sustainability potential: What role can hemp play in the Marlborough region

Marlborough Research Centre

Tuesday 26July 2022 PRESENTED BY RICHARD BARGE THE NZHIA **HEALTH** DISCOVERY & INVESTMENT **TOUR 20** FOOD • FIBRE • HEALTH

SPEAKERS



RICHARD BARGE (NZHIA)

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





KIRSTY HARKNESS (HARK & ZANDER)

Uses of the hemp plant for us in the commercial world both now and future plans. Research results for growing hemp in vineyards.



GERALD HOPE (MARLBOROUGH RESEARCH CENTRE)

An historic overview from the early days of pastoral farming through to horticultural production reflecting Marlborough's changed land use.

BRIAN KINDILIEN (PURO NZ)

NZ medicinal cannabis industry – a grower's perspective.



- 3.00 Welcome
- 3.10 NZHIA
- 3.25 Gerald Hope
- 3.45 Brian Kindilien
- 4.00 Kirsty Hakrness
- 4.20 NZHIA
- 4.40 Panelists
- Till Close

- Introduction and History MRC Puro Hark and Zander **Business plans - Why**
- **Question & Answers**



NZ Hemp Industries Association iHemp and History



Growers and Cultivators



Testing and Development



Processors and Manufacturers







NZ HEMI INVESTO \$2 Billion And 20,000 Regiona Just Needs The





NZ HEMP EXPORT DRIVEN Investor report:

S2 BILLION AND 20,000 REGIONAL JOBS BY 2030 JUST NEEDS THE NOD...













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BILLION -DOLLAR CROP

patrices with endir-produced boreign filter while paying farmore When dellars a ton for being as it comes from the field. From the farmers' point of view; heata is an ener crop to grow and will pield from flater to six how per acre on any land that still grow sorn, when, or outs. It has a short growing present, so that it can be planted after other stops are in. It can be provid to any state of the union. The long roots pesterrate and hreak the sell to berre it in prefect condition for the sent year's ong. The detas show's of lowers, sight to bushes fast above the ground, chakes and usuels. Two auccustive empt are enough to reduce beed that hes been abandoned Instatute of Caladian Dublies or Querk grain. Under ubl methods, hemp

timeland is part 1888.

Figs. makers myster of home deater must from tense. Buttom, bernatting he with a plate binder. Strong group home home hand (in Farme







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









Henry Ford c1930











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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 grave 350,000 acres.







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

If a Party permits the cultivation of the cannabis plant for the prod 1. tion 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.

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

The Parties shall adopt such measures as may be necessary to prevent 3. 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





















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Melcome

Today I'm going to traverse the

landscape of Marlborough and highlight

the wonderful natural attributes we are

guardians of - soil, sun and water

Overview - MRC Established 1983

MRC is a registered charity

Funded annually by Council grant, rental and vineyard income

Funds are used to facilitate co-funding of local research and technology development



MRC was created to provide local science and technical support to the primary sector

An established research and technology development hub

Working alongside local primary producers



Marlborough's economic base for over 160 years has been built on pastoral, agricultural, horticultural production up until the 1970 - 80's

A major transition began through use of our diverse soils, abundant water, sun & geographic location



























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New Zealand Wine Centre - Te Pokapū Wāina o Aotearoa

- Kanoa (PGF) of \$3.9 million matched with equal funding from MRC - \$7.8 million
- Jerram Tocker Barron Architects designed NZ Wine Centre
- A hub for collaboration, innovation, integrated science and technology development





September 2022 - Official Opening of the New Zealand Wine • Centre - Te Pokapū Wāina o Aotearoa


... connecting Research, Business and Education in Marlborough.



Te Rito Hiranga o Wairau

Connecting Marlborough & New Zealand to research, business and education

Nov



Jan



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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

Ministry of Health Licence	Status	Duration / I
Nursery activity (Medicinal cannabis Agency)	Obtained and expired July 2021. Not currently in use.	Annual rene
Cultivation activity (Medicinal cannabis Agency)	Obtained for Kēkerengū Obtained for Waihopai	Annual rene
Supply activity (Medicinal cannabis Agency)	Obtained for Kēkerengū	Annual rene
Licence to export controlled drugs (Medicines Control)	Applied for prior to export	Application

BioGro Accredited - Kēkerengū





EU (CU) GACP Accredited - - Kekerengu



CUMCS

Description Renewal Allows purchase, import, possession and newal supply of cannabis seed to a medicinal cannabis licence holder with the 'cultivation' activity specified. Allows cultivation breeding research, the iewal 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. Allows supply and exporting of medicinal ewal cannabis starting material to appropriately licensed parties. Allows the export of up to 4 products per n per consignment 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

Brian Kindilien Business Development Manager Puro New Zealand <u>https://puro.co.nz/</u> +64 (0)27 285 5388 brian@puro.co.nz





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COMMERCIAL USE FOR HEMP Kirsty Harkness





Our Hemp Journey...















World-leading research grape to glass | 57





















Hemp did not impact

- Canopy development
- Nutrition
- Water relations
- Berry development
- Yield



Hemp positively affected

- Vineyard biodiversity
- Honeybee hives
- Soil organic matter
- Berry skin yeast diversity
- Wine quality





HARK&ZANDER

New Zealand Made Hemp Skincare





11 products







★★★★ 3 reviews \$89.00 NZD or 6 weekly interest-free payments from \$14.83 with ♥ LAYBUY



HEMPRESTORE GOOD NIGHT CRÈME

or o weekly interest-free payments from \$10.50 with V EATBOI



HEMPLAVISH NOUR- HEMPPURIFY EMUL-ISHING BODY OIL SIFYING OIL





EMPPURIFY EMUL-SIFYING OIL CLEANSER













For more information

 <u>Kirsty@harkandzander.com</u> • <u>www.HarkandZander.com</u>



- 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

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





Processors and Manufacturers

Distributors and Consumers



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 HEMP DISCOVERY & INVESTMENT TOUR 20 C

FOOD + FISHE + HEALTH

www.nzhia.com

Regenerative Land Diversification

> Sustainable Revenue Stream

Supporting a Healthy Food Chain

Aotearoa NZ Hemp Statistics

NZ Hemp Industries Association Incorporated Aotearoa New Zealand - iHemp Licence Statistics - Pro

Autourou New Zealana	memp	Licence	Julistic		Iucu by	mon	
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	<u></u>
Total Area Grown	71.6	42.1	106.2	250.8	746.4	1,334.9	860.7

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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.



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.



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.







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

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





JOIN THE NZHIA

BEIN 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





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





SUSTAINABILITY



Coming soon ... a new community building portal

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













Aotearoa New Zealand Hemp Alliance



With thanks to our speakers from



MARLBOROUGH RESEARCH CENTRE Te Rito Hiranga o Wairau

HARK@ZANDER

And regional support from







MARLBOROUGH Te Rito Hiranga o Wairau



With thanks to our sponsors



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







- 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







Distributors and Consumers