

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



THE NZHIA

# iHEMP

DISCOVERY & INVESTMENT

# TOUR 2022

FOOD • FIBRE • HEALTH



## HASTINGS

Exploring hemp's  
economic and  
sustainability potential:  
**Creating growth  
partnerships in the hemp  
industry**

SPONSORED BY:

**AGMARDT**



Havelock North Function Centre

Tuesday 28 June 2022  
PRESENTED BY RICHARD BARGE



# WELCOME



## HER WORSHIP THE MAYOR OF HASTINGS DISTRICT, SANDRA HAZLEHURST

Will extend a warm welcome to the NZHIA  
iHemp Investment & Discovery tour participants.

# SPEAKERS



**RICHARD BARGE  
(NZHIA)**

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



**HOLLEIGH ELLIS  
(HARVEST TO HAND)**

Explaining their version of hemp seed life from Harvest to Hand.



**NICKY SOLOMON (NZ  
FOOD INNOVATION  
NETWORK)**

Developing a hemp-based food or beverage in NZ – who can help and what do you need to think about?



**GARETH  
INGRAM  
(FARMLANDS)**

Learning together how to explore alternative land uses.



# PROGRAM

- 7.30 Welcome
- 7.40 NZHIA Introduction and History
- 8.00 Nicky Solomon NZ Food Innovation Network
- 8.20 Holleigh Ellis Harvest to Hand
- 8.40 Gareth Ingram Farmlands
- 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

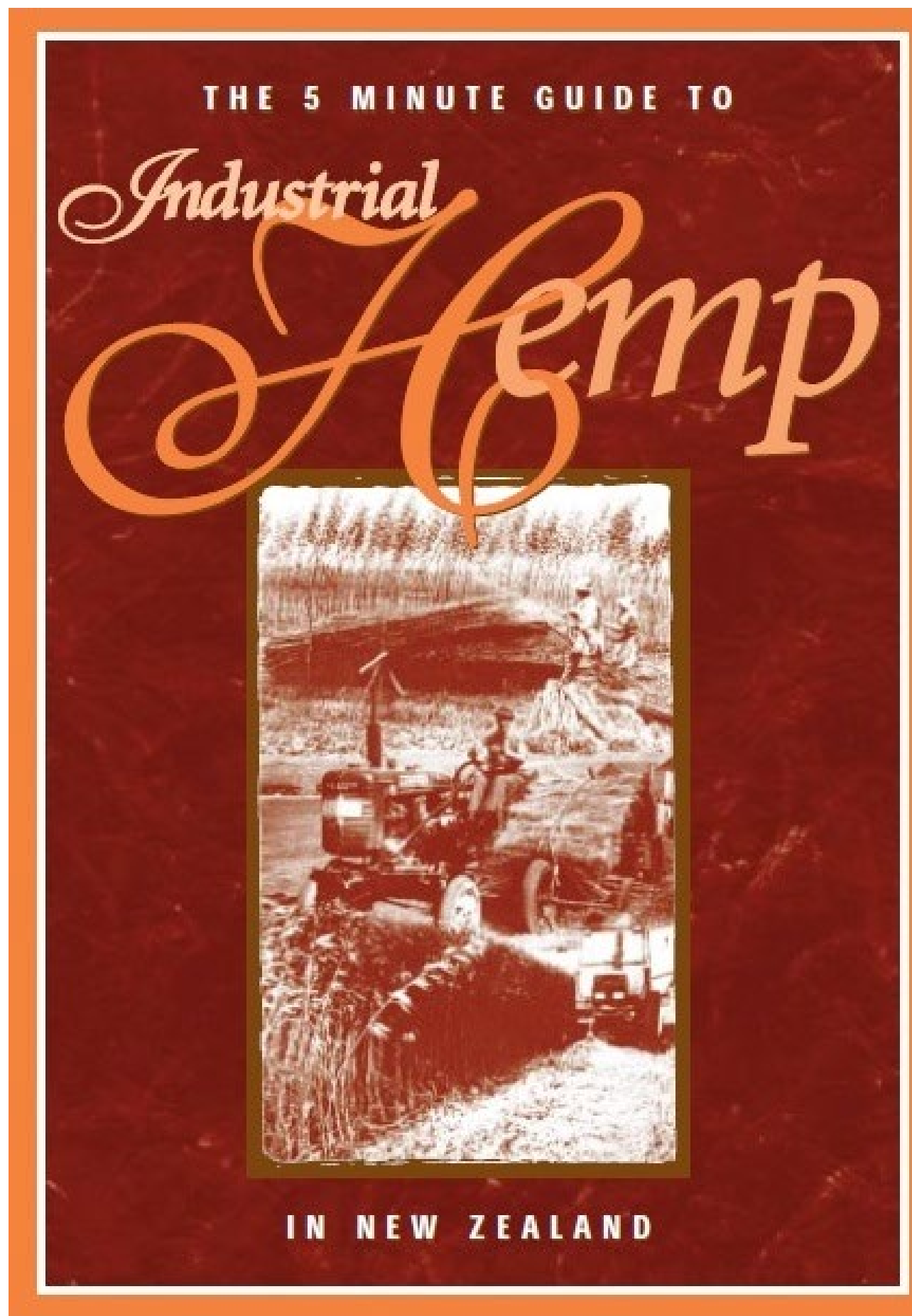


Processors and Manufacturers



Distributors and Consumers

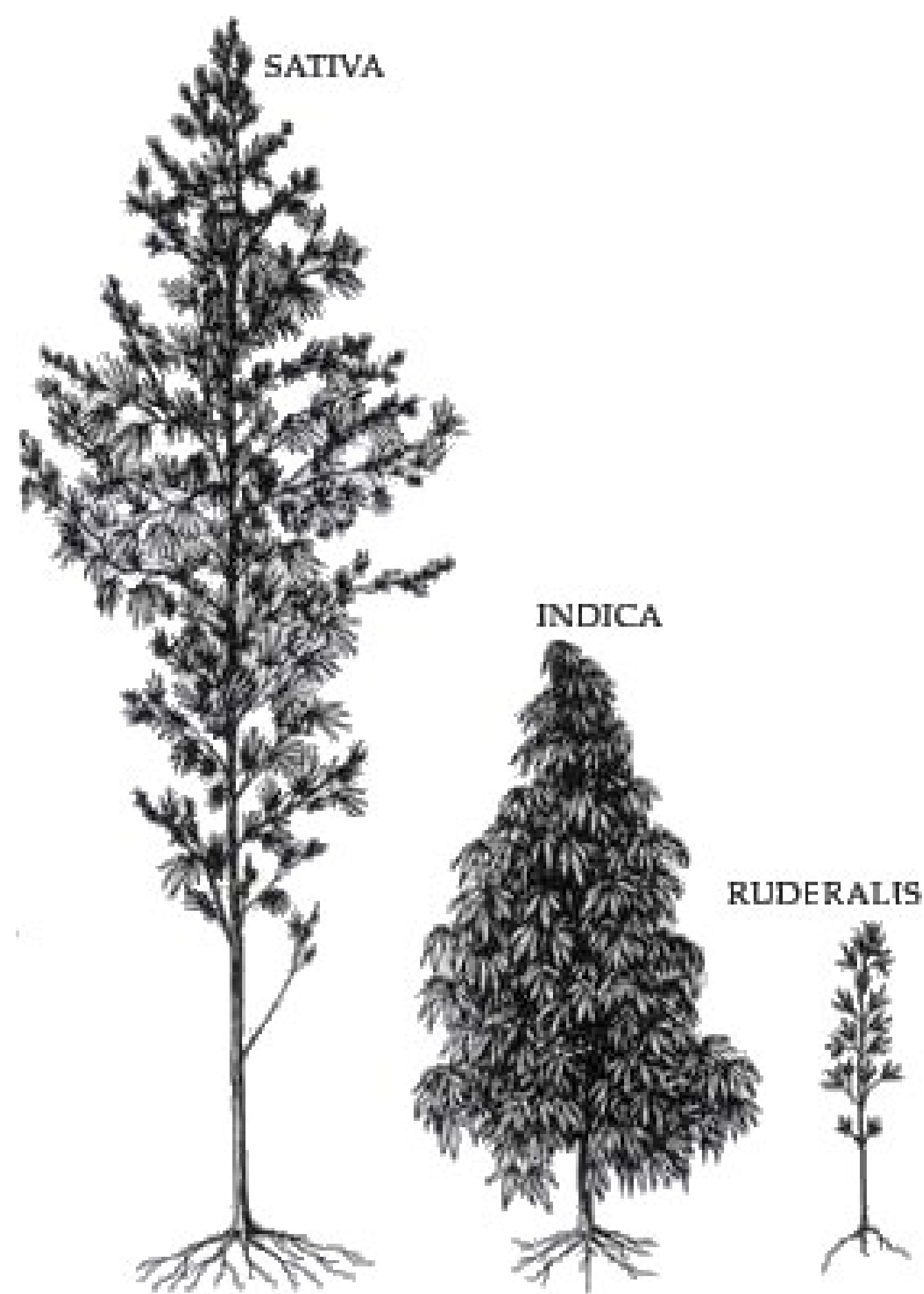




This graphic features a collage of four images at the top: a field of green hemp plants, a factory interior with machinery, a shopping cart filled with groceries, and a bowl of fresh salad. Below these images is a black box with yellow text that reads: 'NZ HEMP EXPORT DRIVEN INVESTOR REPORT: \$2 BILLION AND 20,000 REGIONAL JOBS BY 2030 JUST NEEDS THE NOD...'. The main part of the graphic is a world map on a blue background, with yellow dots and dashed lines connecting New Zealand to various global markets: Europe, China, India, Australia, North America, and South America. Below the map, the word 'GROWTH' is spelled out using wooden blocks, with a hand placing the final 'H' block. An upward-pointing arrow is positioned above the 'H' block. In the bottom right corner, a black box contains the text 'FULL REPORT' in yellow.



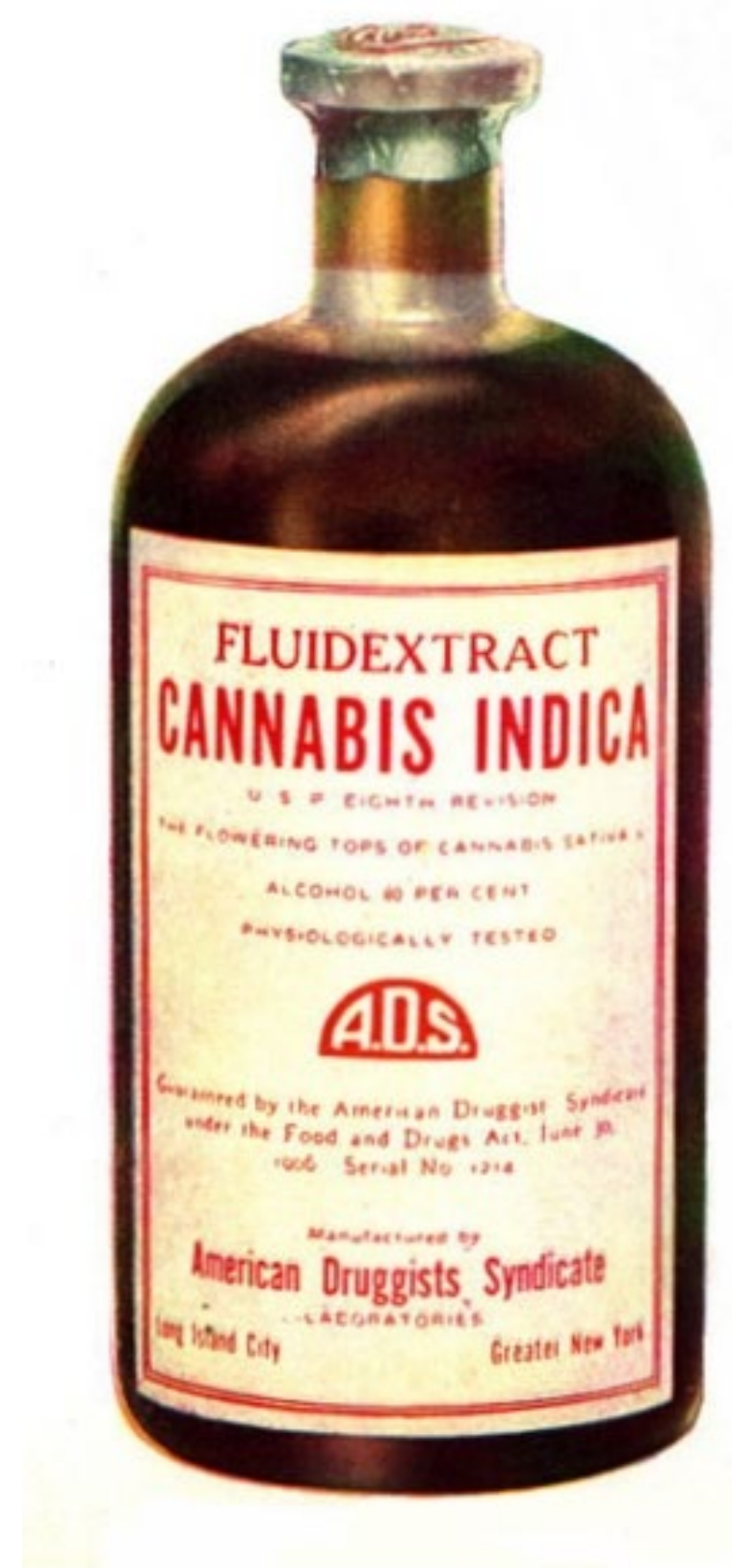
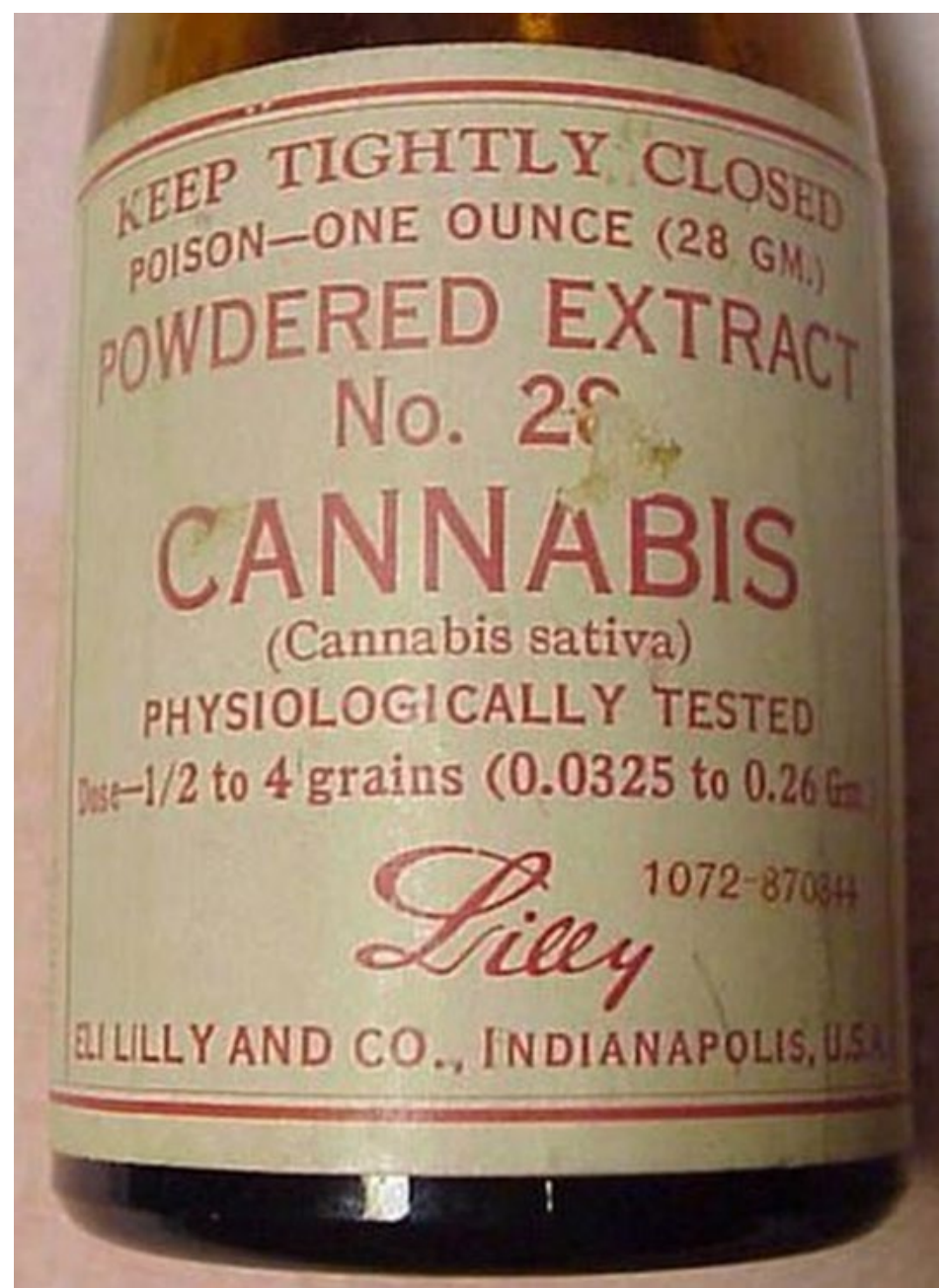
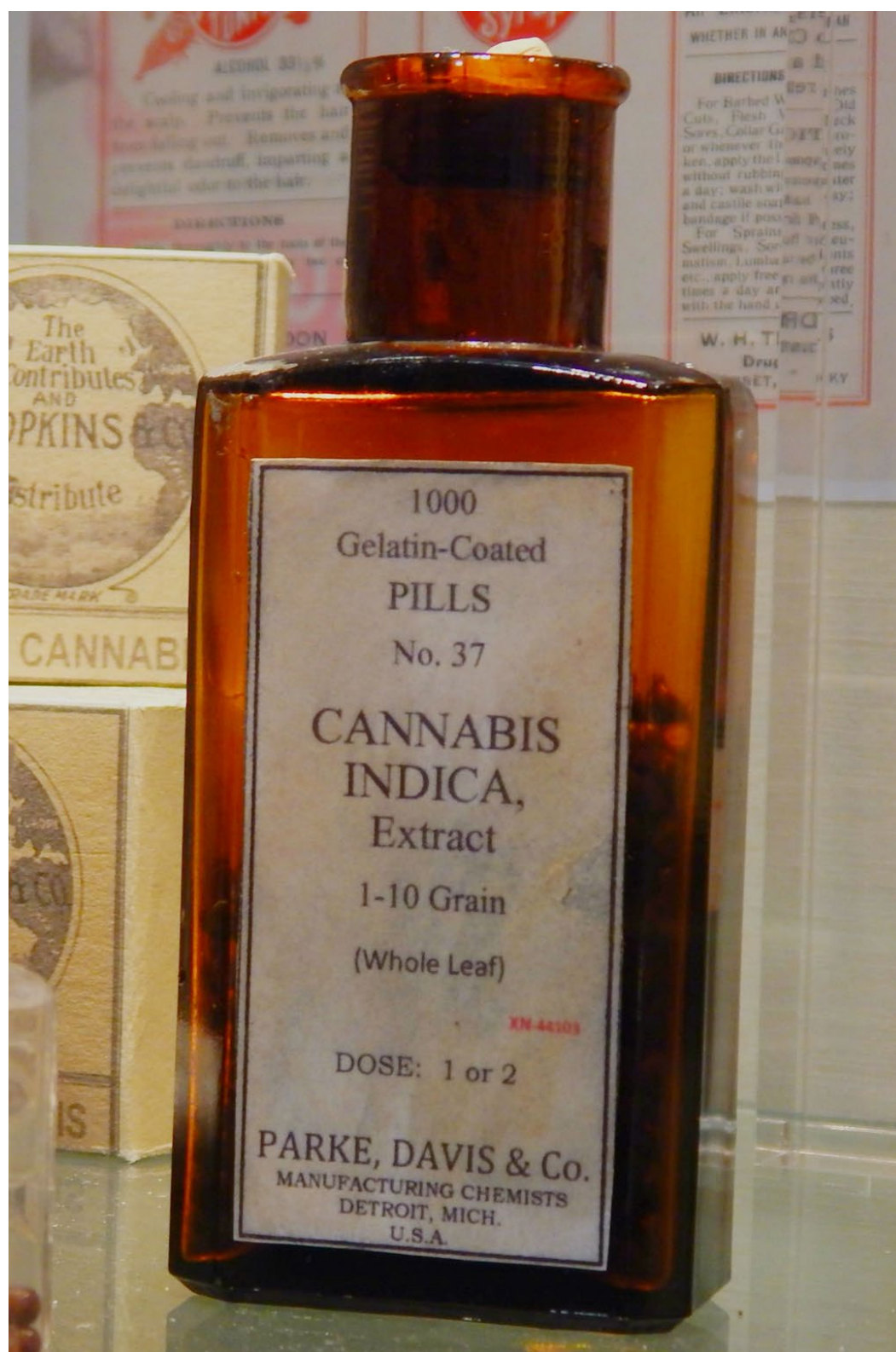






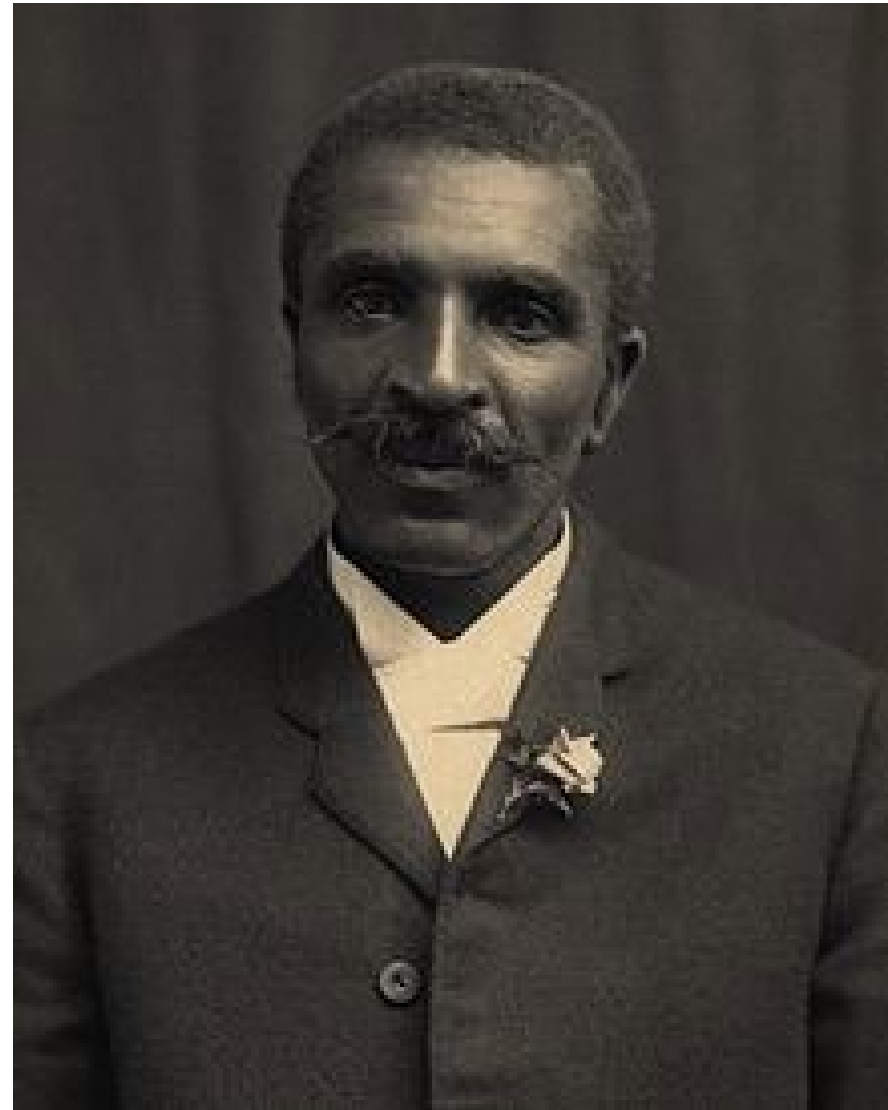








**Chemurgy** is a branch of applied chemistry that is concerned with preparing industrial products from agricultural raw materials



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 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

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





WASHINGTON  
GOVERNMENT PRINTING OFFICE  
1916

BILLION-DOLLAR CROP

petition with cotton-produced foreign fiber while paying farmers fifteen dollars 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 times 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 stand of leaves, eight to twelve feet above the ground, shades out weeds. Two successive crops are enough to exhaust land that has been abandoned because of Canadian thistles or quack grass.

Under old methods, hemp required to pay about





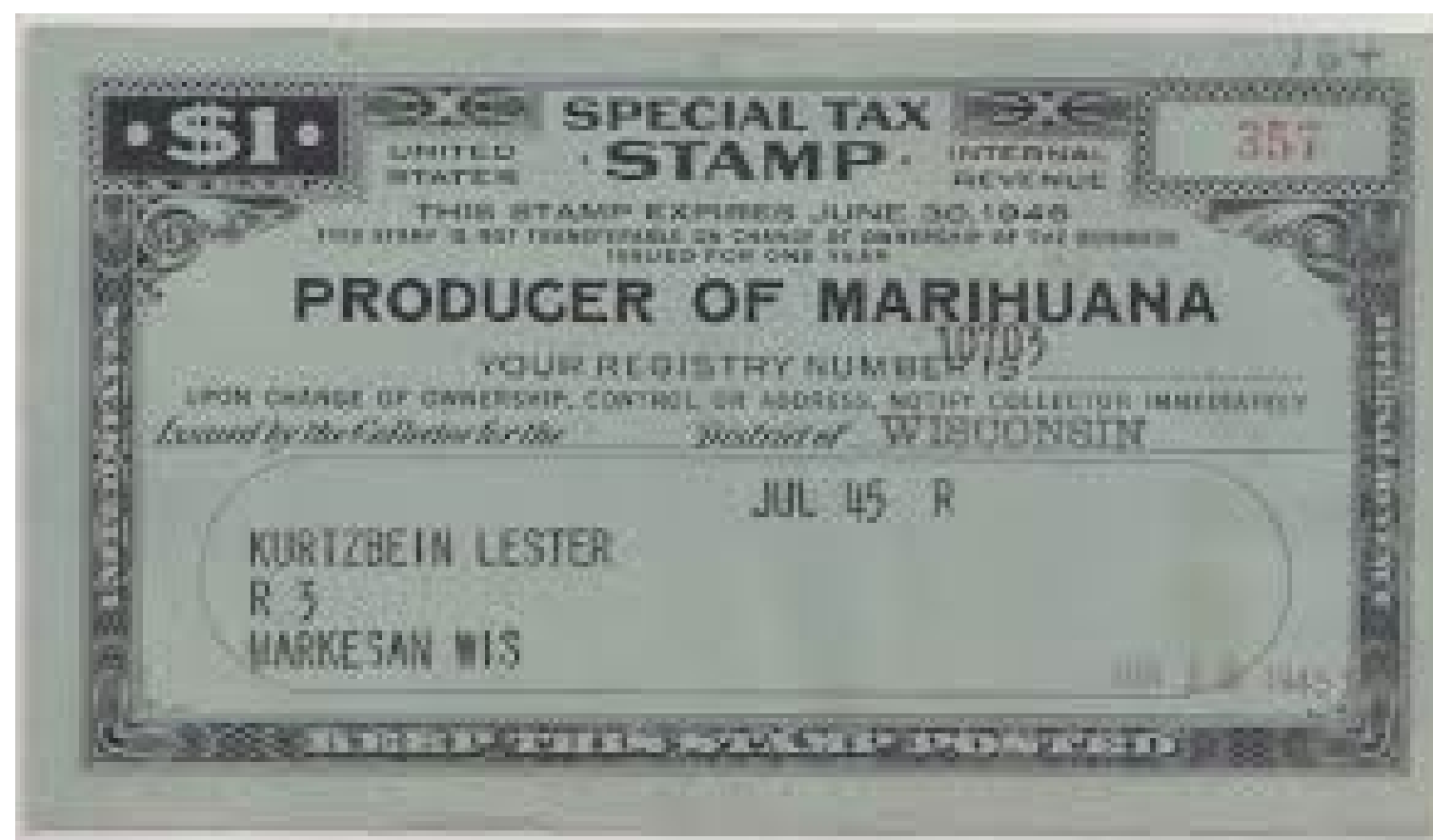
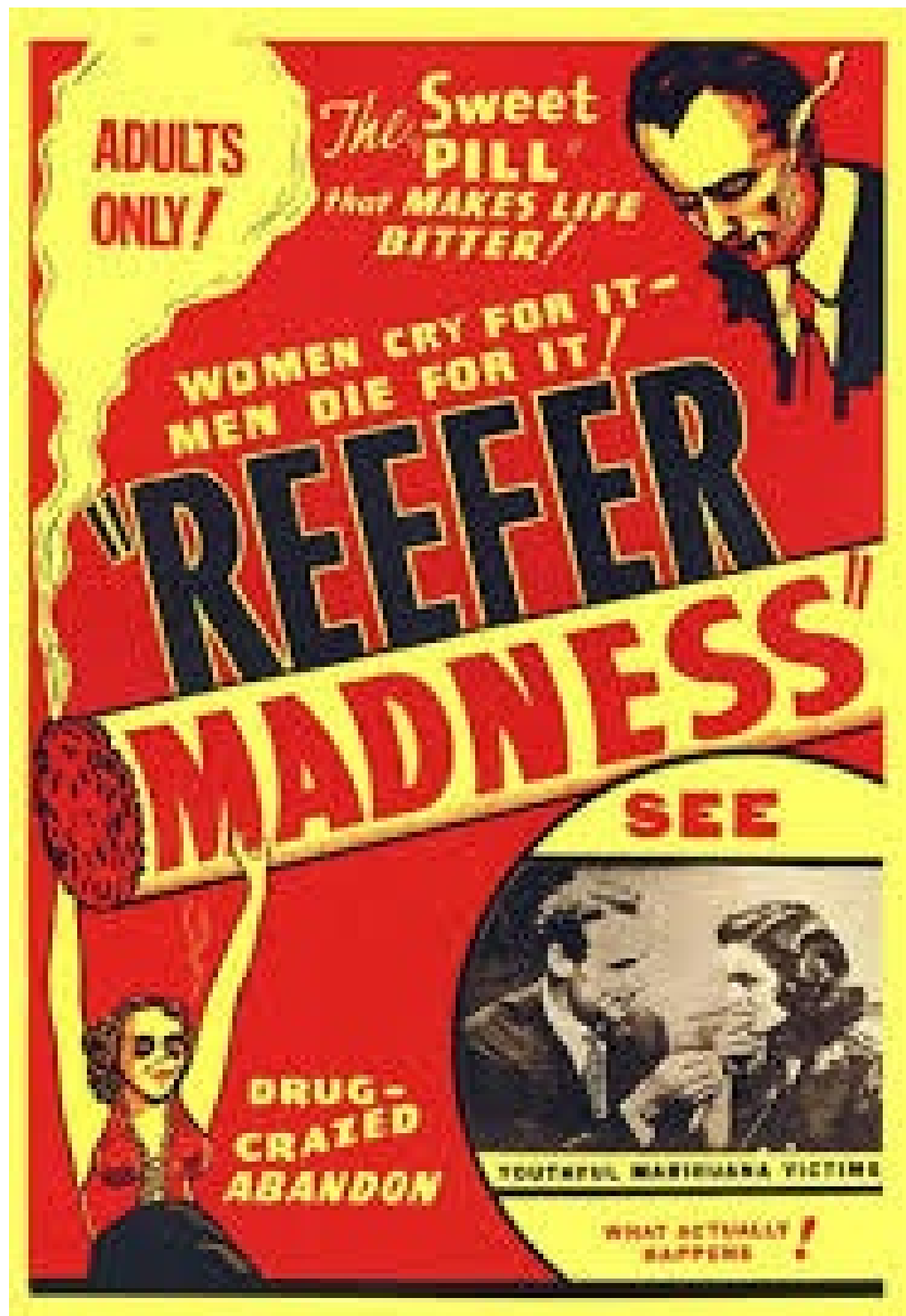
Fig. 1. Modern method of hemp plant growth from seed. Bottom, hemp plant with a green leaf. Hemp grows luxuriantly in France.



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 Foraythe



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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

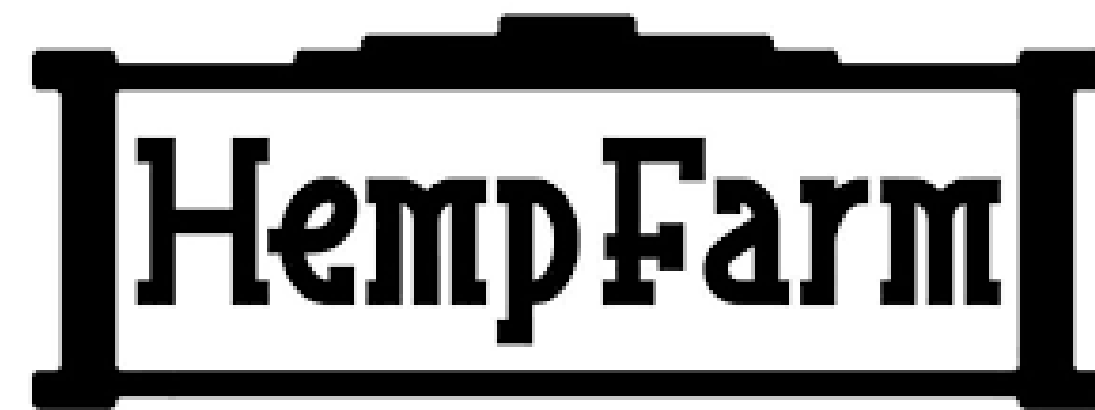
(SR 2006/163)

## 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.







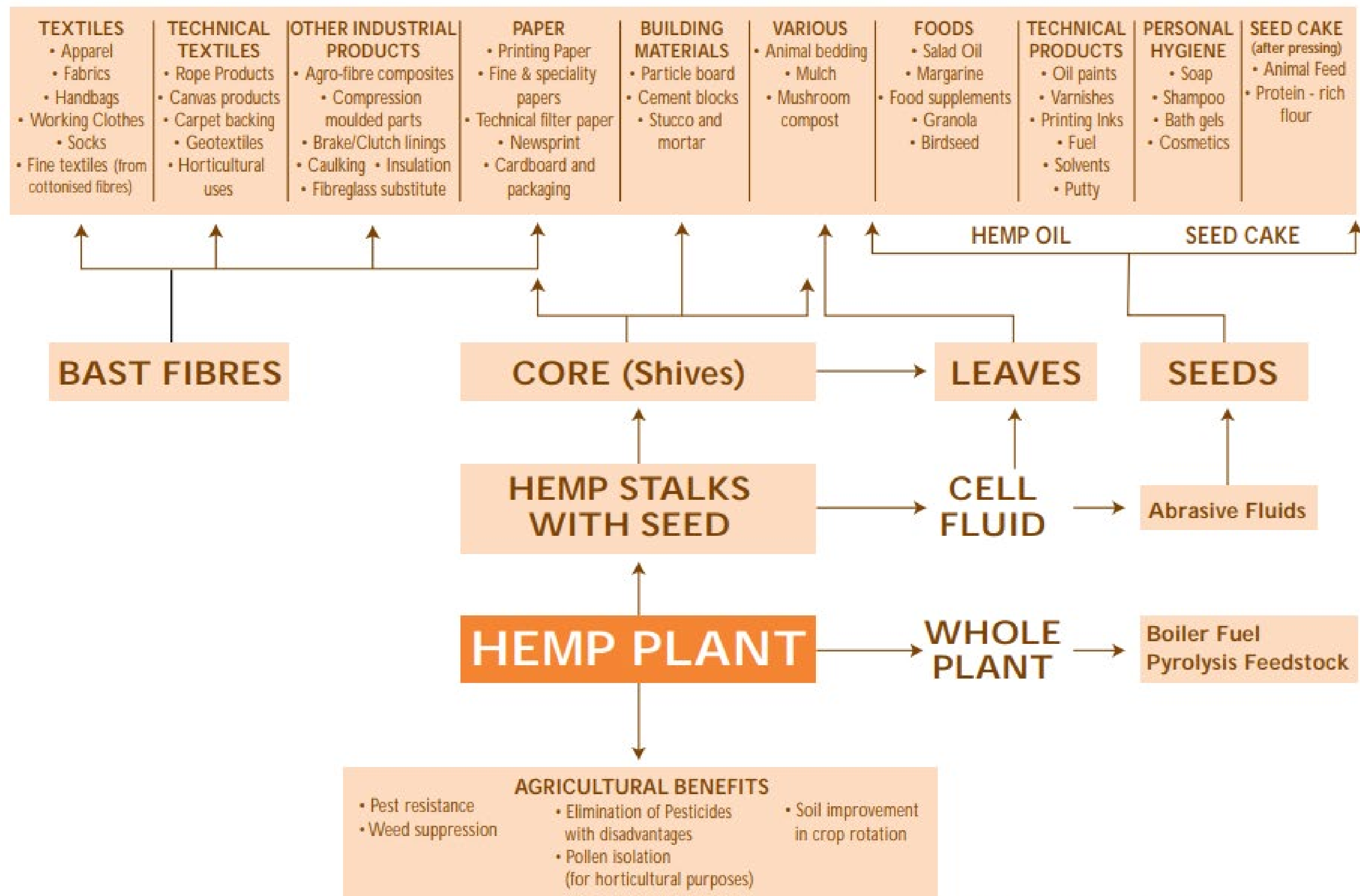
[hempfarm.co.nz](http://hempfarm.co.nz)











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# Hemp-based Food & Beverage

How do we capitalise on the opportunity?



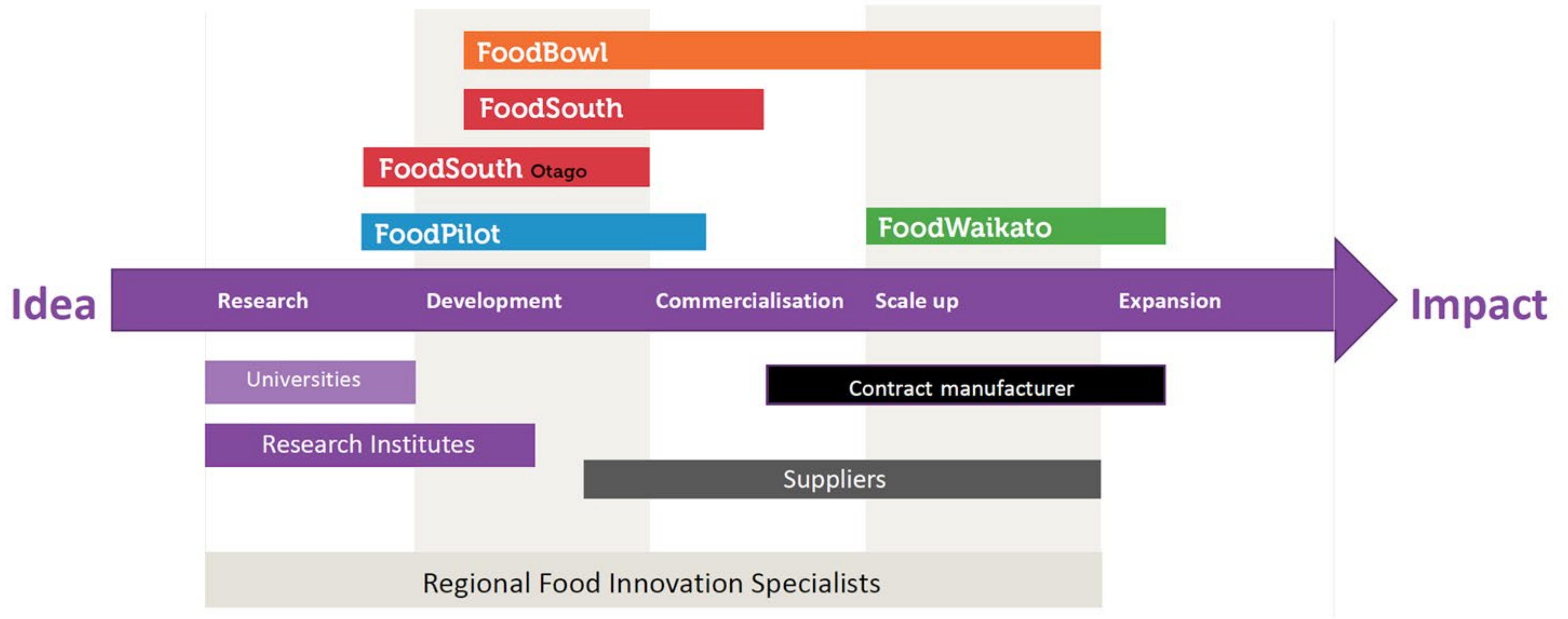
# New Zealand Food Innovation Network

A national network of open-access facilities to support businesses to:

- Innovate and develop new food and beverage products
- Scale up and commercialise new products
- De-risk a move into new technologies or product categories
- Access industry expertise and experience

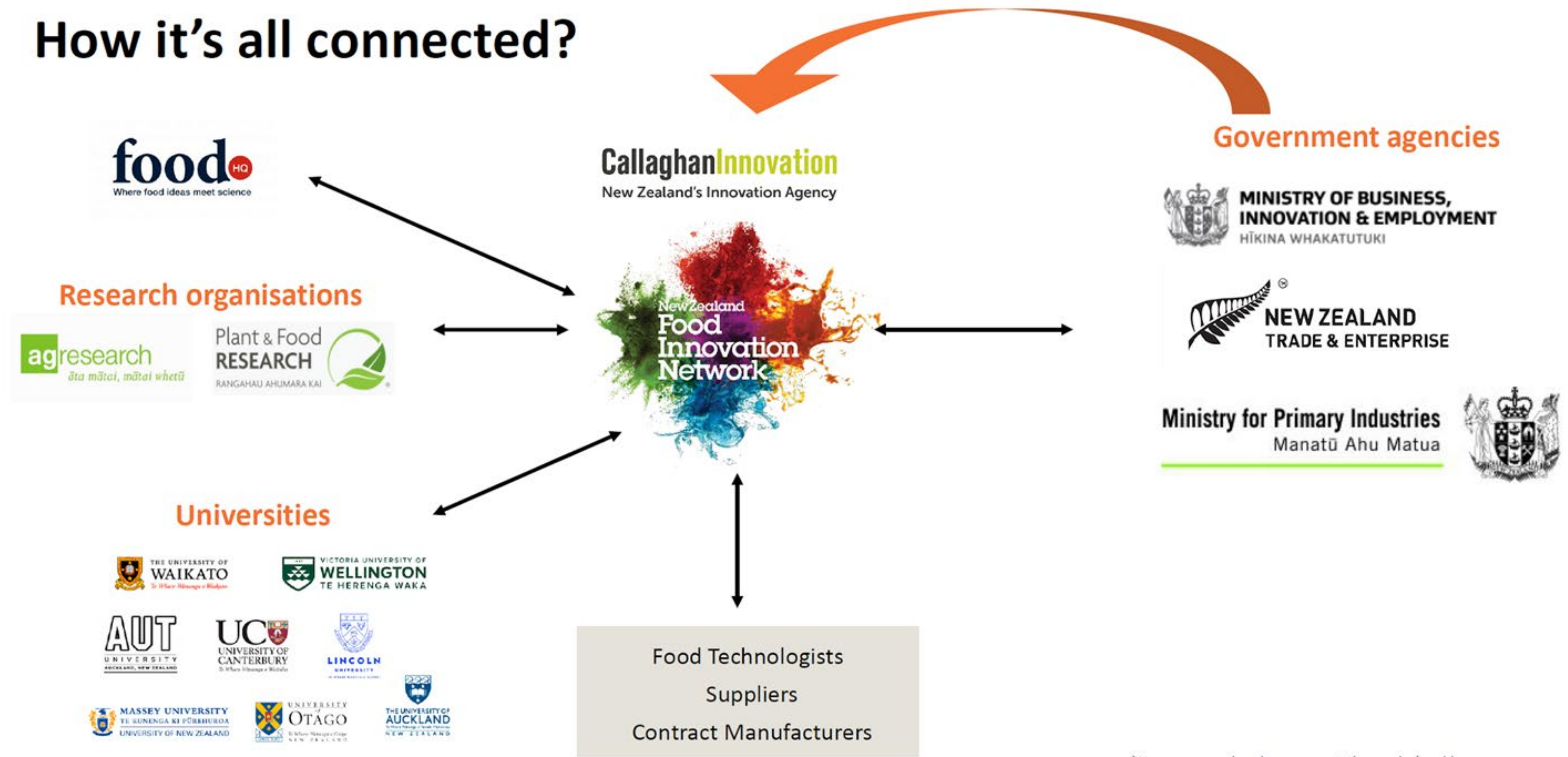








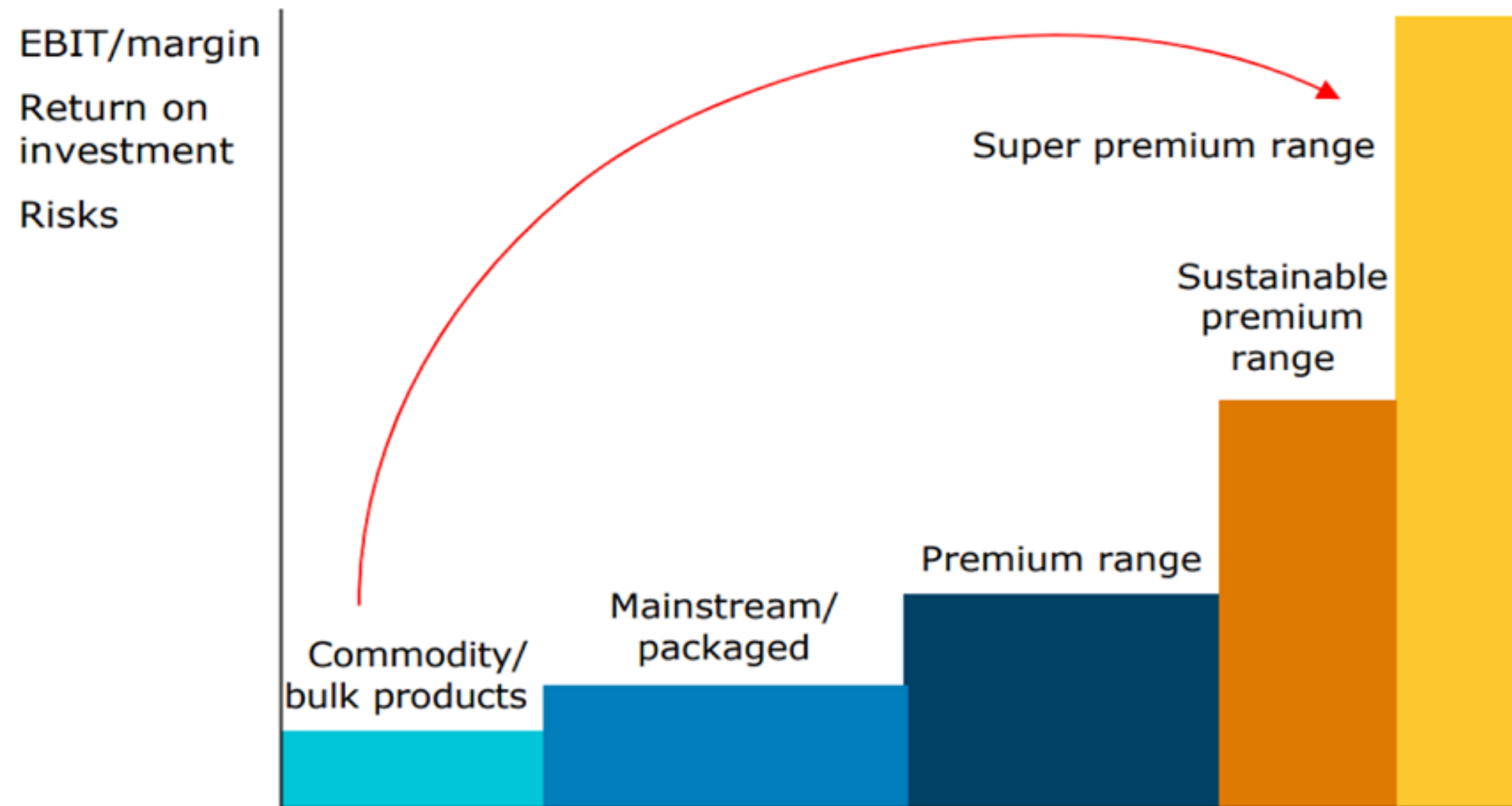
# How it's all connected?



\*Logos are a visual representation only (and by no means complete)



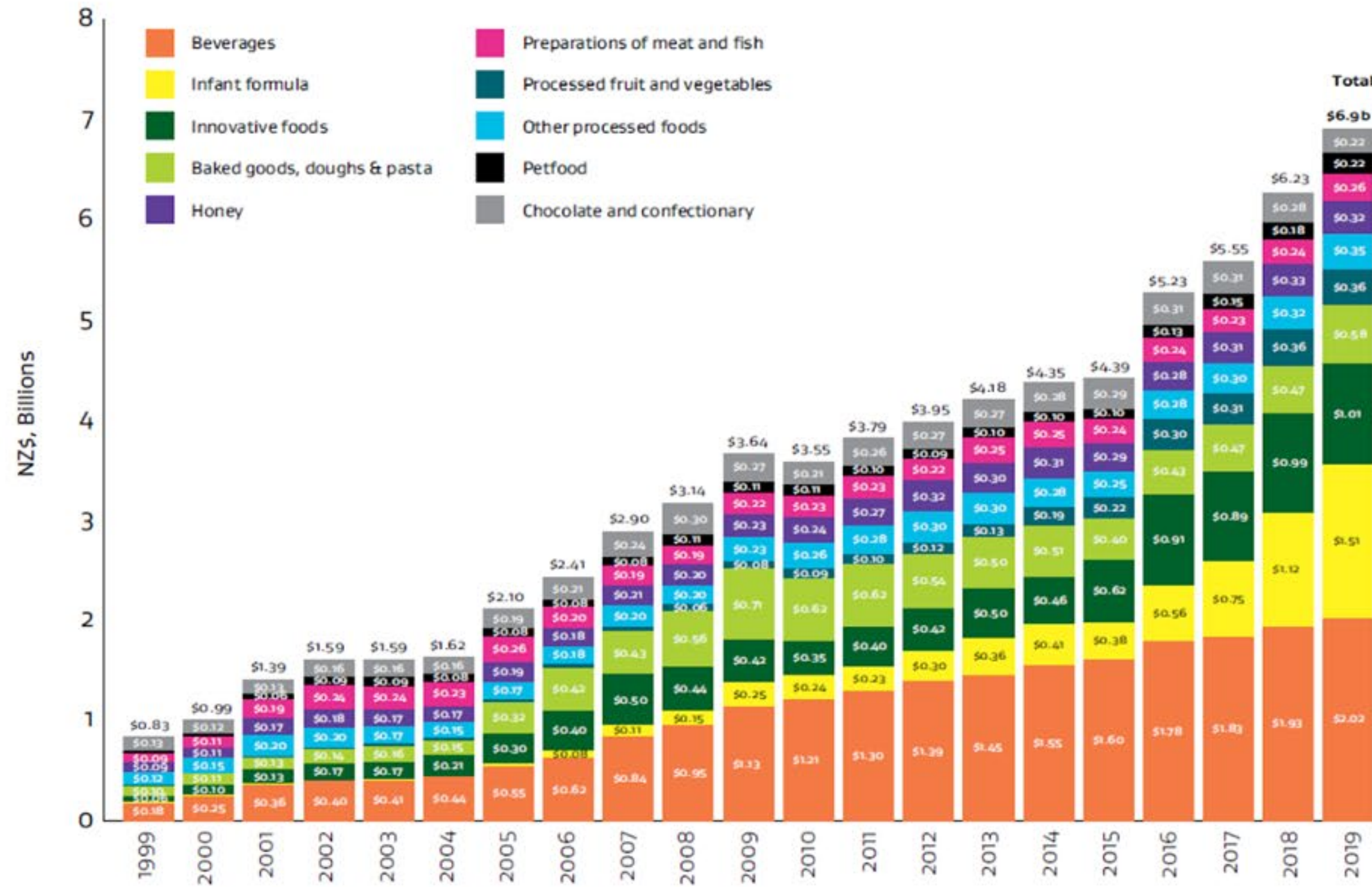
# Food industry doing well – but needs to capture value



Source: ANZ



Figure 11: Value-added food and beverage exports



Source: Statistics NZ



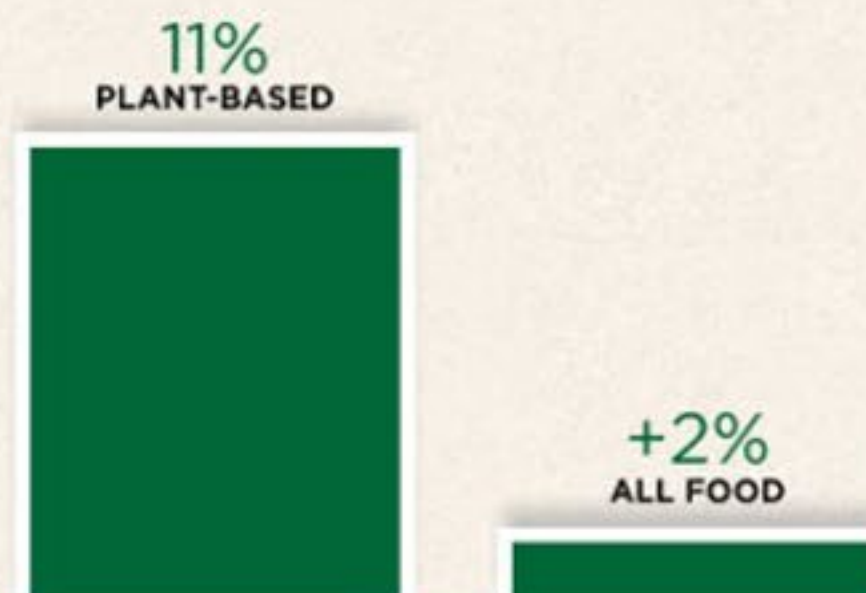
### Three-year PLANT-BASED FOODS Dollar Sales



52 weeks ending April 2019.  
Commissioned data from SPINS.

plantbasedfoods.org

### Total Growth of All PLANT-BASED FOODS in Retail



52 weeks ending April 2019.  
Commissioned data from SPINS.

plantbasedfoods.org



# Four global megatrends



**Ease & convenience**



**Functional food**



**Indulgence**



**Conscious consumption**





## Major growth factors for hemp-based food:



Growing number of vegans



Rising health consciousness



Increase in coeliac disease



2030

## Change incorporated



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Consumers will turn to companies to be the leading forces for change on important societal issues

---

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Consumers will support companies that make them feel more judicious in their use of packaging and precious resources

---

---

Consumers will further prioritise plants in their diets, now with the planet's health in mind as much as their own

---



# Superfood in a bottle – Chia Sisters





Raw Materials



NZ is GREAT at this!

Break up plant into components



Ingredients

- Protein
- Fibre
- Starch
- Nutrients

Combine components into foods



Formulate

- Blend
- Extrude
- Pack
- Brand

Consumer Food



NZ doesn't do this!

NZ is OK at this



# Proliferation of plant-based milk but.....

Currently very limited UHT contract manufacturing capacity.







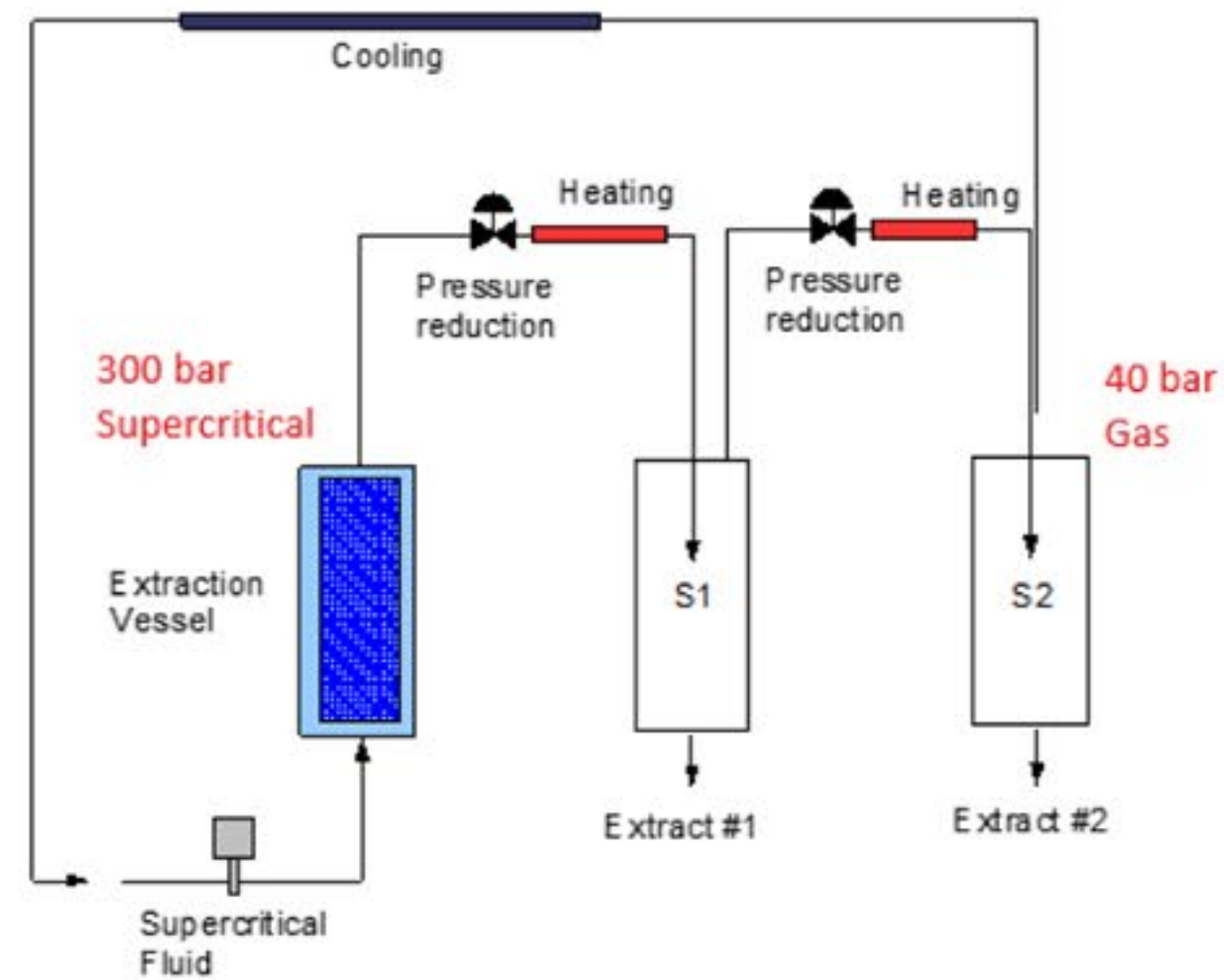
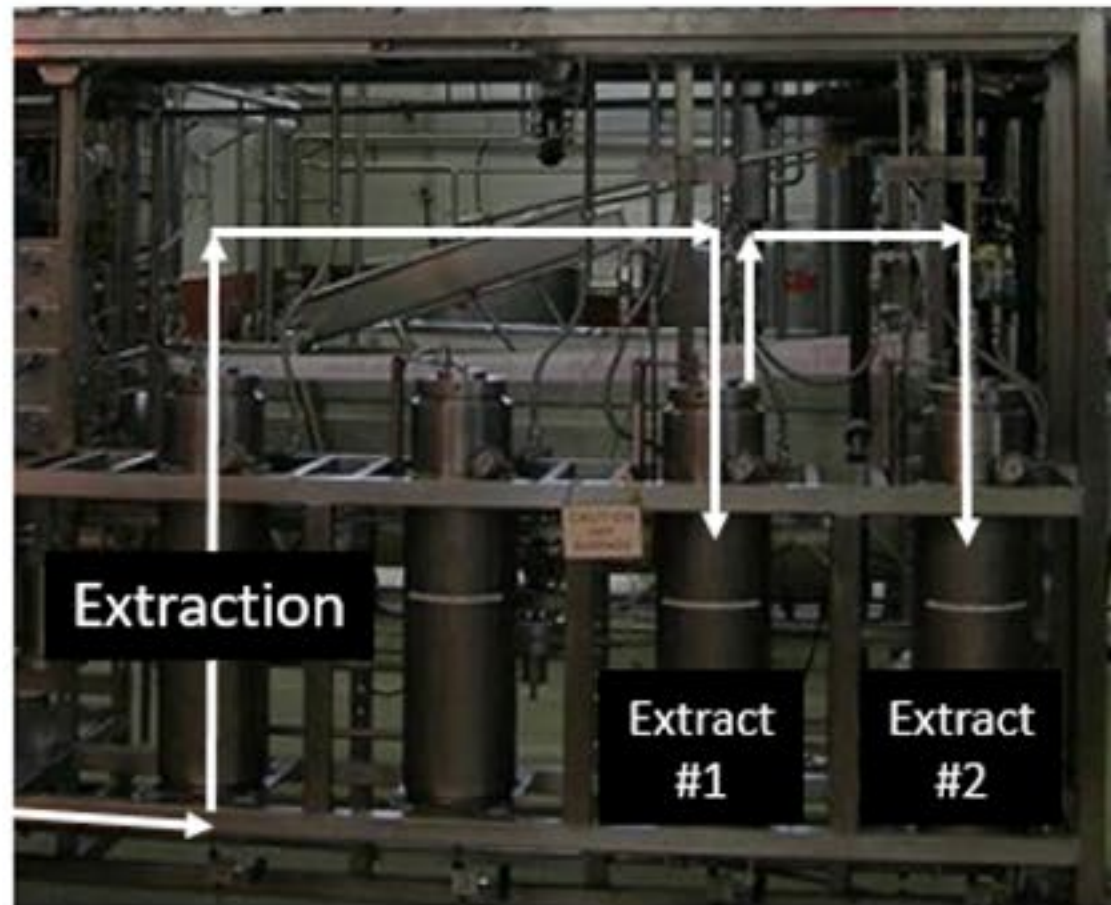






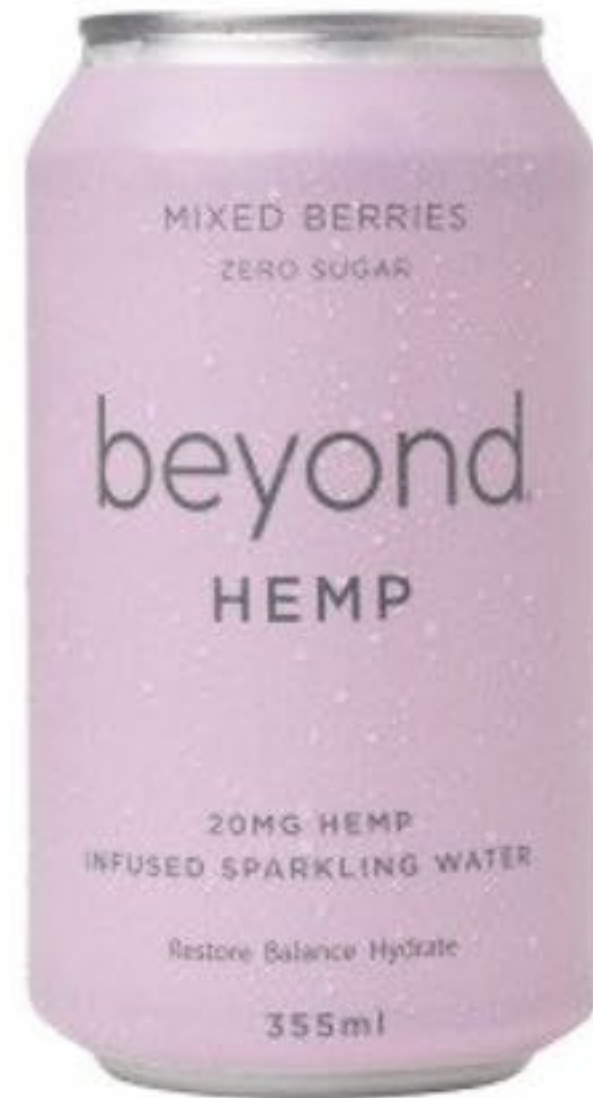
# Supercritical processing – Natural Extracts

Callaghan  
Innovation



THE **FOODBOWL**





“Hold the kefir and coconut water, put down the turmeric latte. The biggest trend in health drinks is hemp-based everything.” GoodFood, Feb. 2021





# Hemp Seed Capability Roadmap

## **Accessing the right capability to succeed in hemp seed derived food, beverage or body care**

This roadmap will help you navigate this rapidly evolving industry – identifying the capability required for any business, whether you are focused or vertically integrated.

Providing information and guidance all the way from seed to market.





## Develop your Strategy. Right from the start.

Developing a successful business strategy, R&D, IP strategy and regulatory and market access strategy should be the start point. They are core to establishing a hemp seed derived product business and should be continually revisited as you grow.



» full Roadmap









# The information revolution: exponential change

*We won't experience  
100 years of progress in  
the 21st century  
— it will be more like  
20,000 years of  
progress.*

*The Law of Accelerating Returns*



# Ender Wiggin



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Wholesome  
products from  
our family to  
yours



# HH

**HARVEST TO HAND**



A brand built on the  
concept of taking  
everything we produce  
straight to the  
consumer.

# HARVEST TO HAND





# HARVEST TO HAND

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## Hemp

- Cannabis Sativa
- How its grown
- Nutrition benefits
- Environmentally friendly
- How its utilised



# Hemp (*Cannabis sativa*)

---

- Hemp leaf
- Hemp stalk
- Hemp shell (hull)
- Hemp seed (dehulled)



# How it's grown

---

- Soil preparation
- No sprays or chemicals needed
- Essentially a 'weed'



# Hemp Nutrition Benefits (Plant Based)

---

- Hempseed contains approximately **25% to 30% oil, 25% to 30% protein, 30% to 40% fibre, and 6% to 7% moisture**
- Complete Protein source
- Omega 3, 6 & 9
  - Crucial for brain function
  - Skin health
  - Immune system
  - Inflammation
- Fibre



# Environmental Benefits

---

- One of the most sustainable crops in the world
- Fastest growing
- No sprays necessary
- Effective at breathing CO<sub>2</sub>
- Whole plant can be utilised



# How we like to use it

---

- Can replace your extra virgin olive oil
- Salad dressings
- Sautéing
- Dips
- Sprinkle hemp hearts on everything and anything - subtle nutty flavour



# Thank You

---





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# Learning together how to explore alternative land uses.

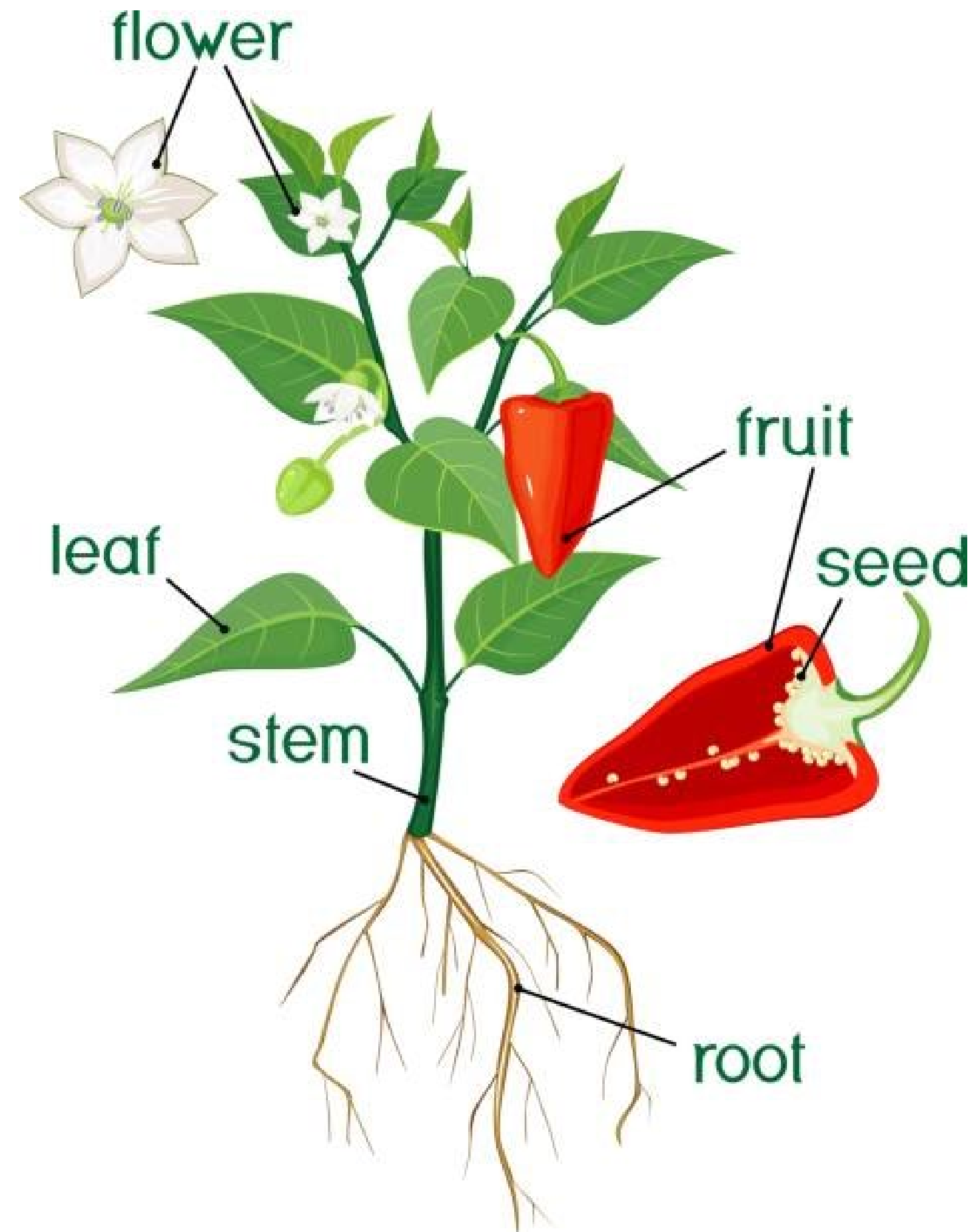
Gaz Ingram

Farmlands – Technical Leader,  
Organics



























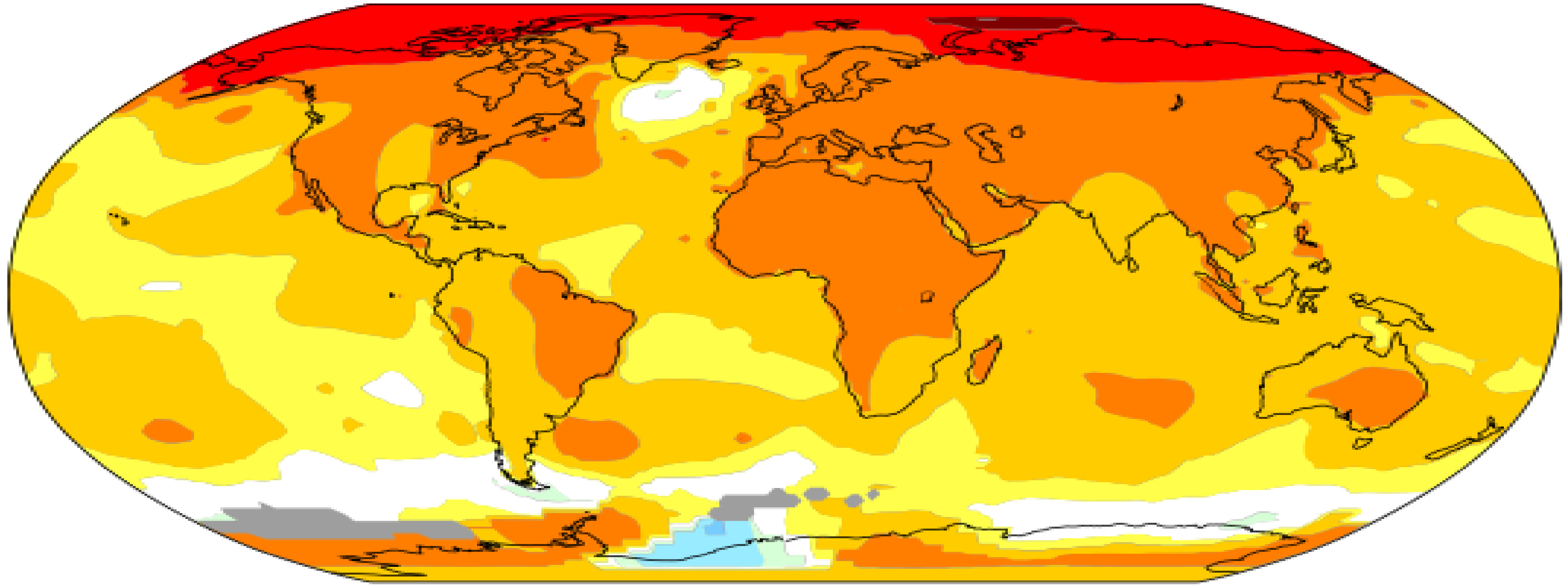








# Temperature change in the last 50 years



2011-2021 average vs 1956-1976 baseline

-1.0   -0.5   -0.2   +0.2   +0.5   +1.0   +2.0   +4.0 °C



-1.8   -0.9   -0.4   +0.4   +0.9   +1.8   +3.6   +7.2 °F



**Thank you for your time**



# 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.



**2020  
“Finola”  
hemp crop  
in Tirau,  
Waikato**





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





# WHY HEMP?

How can hemp be used in FARMING:

- ① Farming as an alternative land use and cash crop plus phytoremediation, heavy metal removal and soil cleaning/conditioning.
- ① Use for nitrogen uptake, and climate change mitigation.
- ① Crop rotation and break cropping in collaboration with other primary industries.



# Sheep & Beef? What can hemp do for you?





# 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
Tairāwhiti	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	-
<b>Total Area Grown</b>	<b>71.6</b>	<b>42.1</b>	<b>106.2</b>	<b>250.8</b>	<b>746.4</b>	<b>1,334.9</b>	<b>860.7</b>



# WHY HEMP?

How can hemp be used in FOOD INDUSTRY:

- ① Seeds for food and utilising local circular economy by-product streams to make new and innovative products.
- ① Hemp seed nutritional products for humans and animals as well as seed multiplication for northern hemisphere hempseed companies.
- ① 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



# 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*





# 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.



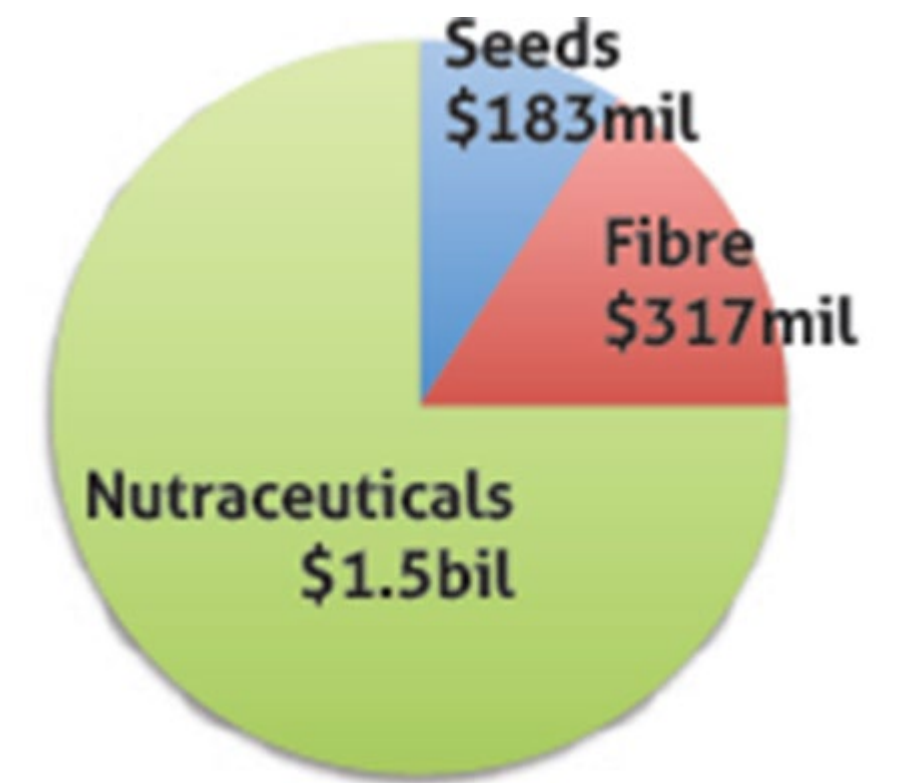
Working with Mānuka, Kawakawa and other native botanicals grown in New Zealand.



# 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 Scenario 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!

Be part  
of the  
tour &  
**WIN!**

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

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**TOUR 2022**  
FOOD • FIBRE • HEALTH

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



THE NZHIA  
**iHEMP**  
DISCOVERY & INVESTMENT  
**TOUR** 2022  
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# 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](http://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



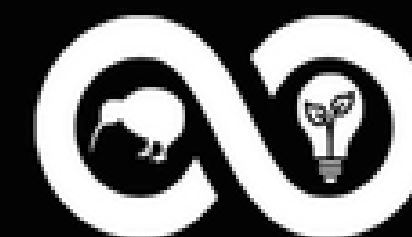
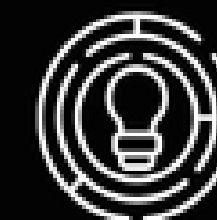
BIOMATERIALS



HEALTH



INNOVATION



**Aotearoa New Zealand  
Hemp Alliance**

*Coming soon ....a new community building portal*



# WITH THANKS

With thanks to our speakers from



and regional support from





# WITH THANKS

With thanks to our sponsors

**AGMARDT**



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





THE NZHIA  
**iHEMP**  
DISCOVERY & INVESTMENT  
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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](http://www.nzhia.com)**



Growers and  
Cultivators



Testing and  
Development



Processors and  
Manufacturers



Distributors and  
Consumers