



Commit. Act. Impact.

Crops, Cattle, and Climate:
Potential Solutions to
Agriculture's Potent Pollutants

25.January. 2018





a project of



COMMIT. ACT. IMPACT.

Climate Collaborative Commitment Areas



Integrate carbon farming into the agricultural supply chains



Increase energy efficiency



Reduce food-waste in the supply chain



Remove commodity-driven deforestation from supply chains



Responsible engagement in climate policy



Reduce the climate impact of packaging



Commit to 100% renewable power



Reduce short-lived climate pollutant emissions



Reduce climate impacts of transportation

How to commit



TAKE ACTION

BLOG

MEDIA & RESOURCES

EVENTS

ABOUT

DONATE



More companies are taking action to reverse climate change than ever before. They're tackling this global challenge not only because it's essential to the future of our planet but also because doing so offers tremendous opportunities for growth, job creation, and prosperity.

Companies can help reverse climate change by making a commitment to one or more of these initiatives.

WHY TAKE ACTION?

Climate change is both the greatest threat our planet has ever faced

MAKE A COMMITMENT

SIGNUP FOR UPDATES

Add Your Email Address



How many companies have committed?

330

Companies
Committing to Action

1260

Commitments



THANK YOU TO OUR DONORS!

Alter Eco

Annie's

Associated Brands

California Olive Ranch

Cheer Pack

Clif Bar & Company

Connective Impact

Danone North

America

Decker and Jessica

Rolph

Dr. Bronner's

Elk Packaging

Foodstirs

Gaia Herbs

General Mills

Good Earth Natural

Foods

GrandyOats

GreenSeed Contract

Packaging

Guayaki

Happy Family

Harmless Harvest

INFRA

Justin's

KeHE

Kuli Kuli Foods

Lotus Foods

Lundberg Family

Farms

MegaFood

Melt Organic

MOM's Organic

Market

Mountain Rose Herbs

National Co+op

Grocers

Natural Habitats

Nature's Path

New Hope Network

Numi

Nutiva

Oregon's Wild Harvest

Organic India

Organic Valley

Outpost Natural Foods

Patagonia

Plum Organics

Pluot Consulting

Presence Marketing

Rebbl

Stahlbush Island Farms

Stonyfield

Straus Family

Creamery

Studio Fab

Tacoma Park Silver

Spring Co-op

Traditional Medicinals

Trayak



COMMITMENT: REDUCE HFCS, METHANE AND BLACK CARBON EMISSIONS

Why Commit To Reducing Short-Lived Climate Pollutant Emissions?

- One of the main climate change culprits in the food supply chain, methane is produced primarily from the enteric fermentation of ruminant livestock such as cattle and sheep, and is released when the animals burp as well as from their manure.
- Methane is also released by rice cultivation – the warm, waterlogged soil of rice paddies provides ideal conditions for methanogenesis – the formation of methane by microorganisms.

To get started, companies may choose to engage with suppliers and partners to provide training, conduct pollutant inventories, establish systems for tracking, measuring and monitoring SLCP emissions.

67 Companies have made a commitment to reduce HFCs, Methane and Black Carbon Emissions!

Previous Webinars:

- Potent Pollutants: Mitigating the Power of Methane, Black Carbon, and Hydrofluorocarbons

Our Speakers



MODERATOR

Lisa Spicka

Associate Director

Sustainable Food Trade Association
(SFTA)



Peter Ettema

Manager

New Zealand Ministry for Primary
Industries



Ken Lee

Co-Founder & Co-CEO
Lotus Foods



Crops, Cattle, and Climate: Agriculture's role in the climate discussion

Peter Ettema
Manager, International Environment
Ministry for Primary Industries
26 January 2018

Growing and Protecting New Zealand



What the presentation will cover

- Background about New Zealand
- Global picture
- Greenhouse gas emissions
 - Countries and sources
- Role of agriculture
- New Zealand action





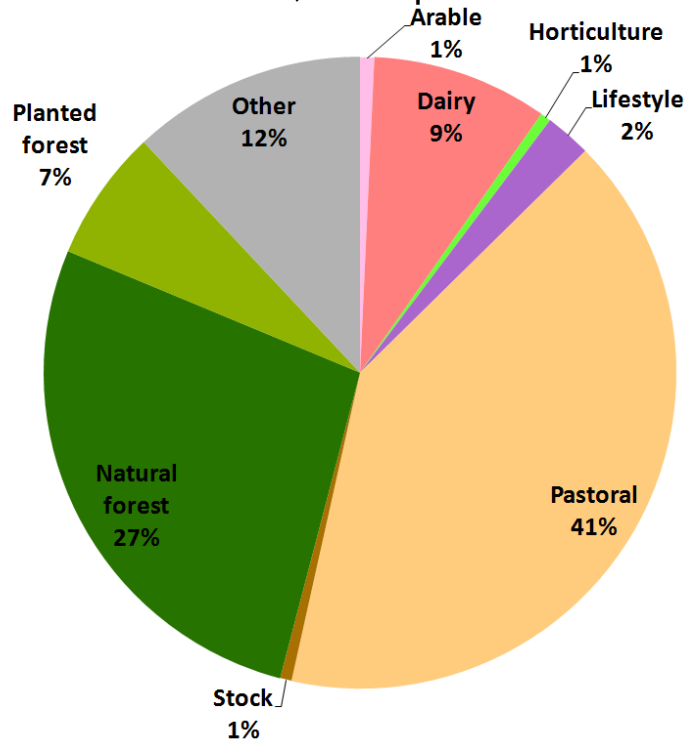
New Zealand: Snapshot

- Population: 4.9 million
- Isolated island nation
- Abundant rain and sunshine, from subtropical north to cool south

Key Statistics

- Around 90% of NZ's agricultural produce is exported
- 10.6% GDP
- Subsidy free/ on-farm returns reflect international markets
- All year outdoor grazing

Land area: 268,000 square kilometres



Pastoral farming production as of June 2017:

Sheep: 27.4 million

Beef cattle: 3.6 million

Dairy cattle: 6.5 million

Deer: 0.85 million

Primary industry export revenue 2018

Dairy = \$16.6 billion

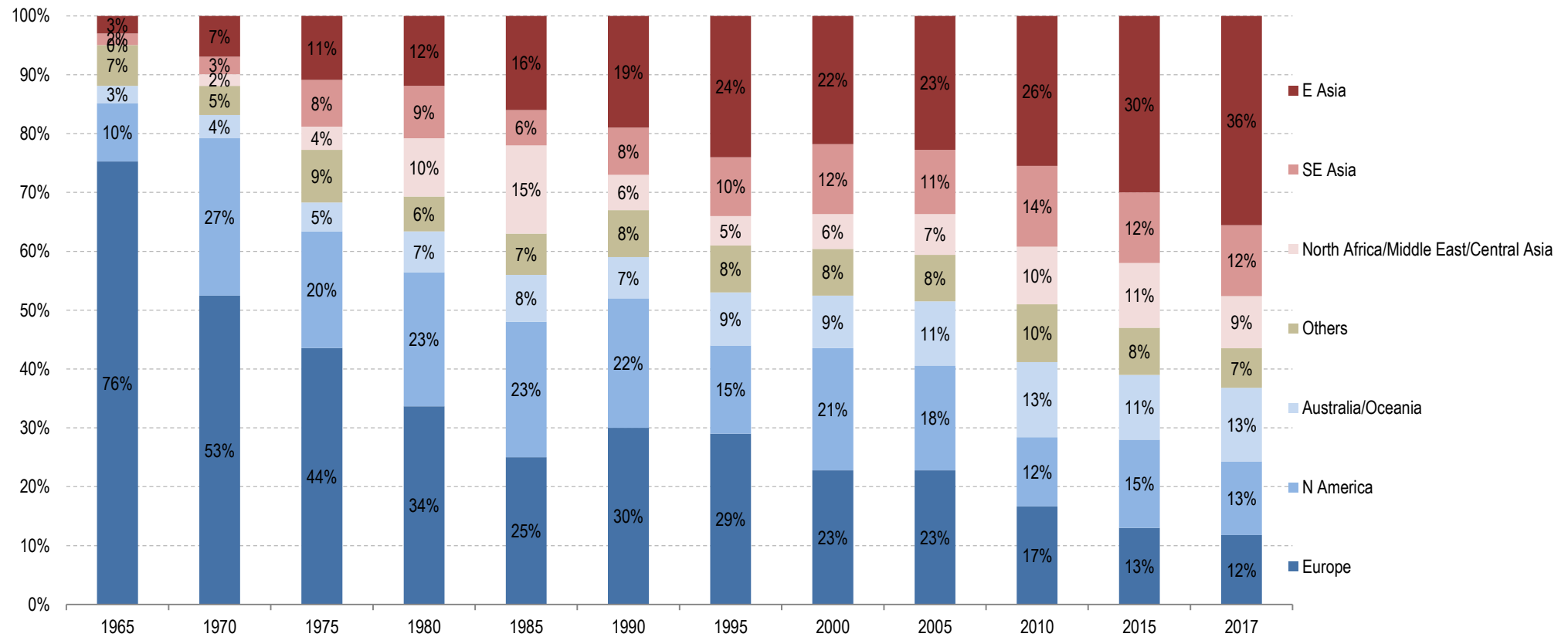
Meat & Wool = \$9.4 billion

Forestry = \$6.4 billion

Horticulture = \$5.5 billion

Seafood = \$1.8 billion

Diversified Markets: No longer reliant on European and North American markets



Global Drivers

- Climate change – huge risks, uncertainties and opportunities
- UN SDGs driving global awareness/ policies/ indicators
- Redefining sustainable consumption/ production (SDG12)
- Changing definitions of food
- Bio-based economies/ circular economy/ planetary boundaries
- Rising protectionism threatening the rules-based trading system and discontent with globalisation.
- E-commerce/ data/ speed of innovation
- Role of social media
- 3.8 bn people suffer some form of malnutrition

International Agreements



Paris Agreement

- **Comprehensive:** creates obligations for all countries, but accepts that not everybody will do the same
- **Flexible:** bottom-up - each country sets its own emission targets; only real obligation is to monitor and achieve those
- Reducing emissions while safeguarding food security....and food production systems
- **2030 target** 30% below our 2005 (11% below 1990)

Koronivia decision at Bonn (2017)

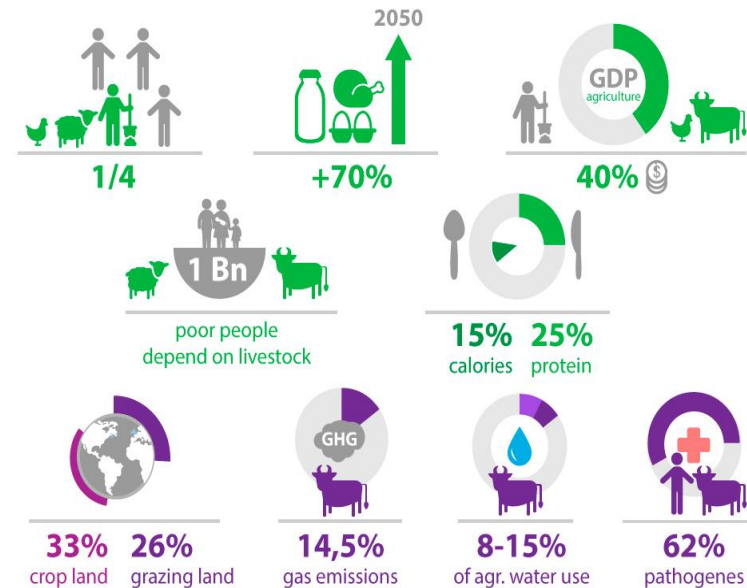
- recognizes the importance of agriculture in responding to climate change
- provides the framework within the UNFCCC to develop and implement new strategies for adaptation and mitigation within the agricultural sector, that will help reduce emissions from the sector as well as build its resilience to the effects of climate change

Sustainable Development Goals

- Many goals are linked to food production and food security
- SDG indicators increasingly seen as the reference point

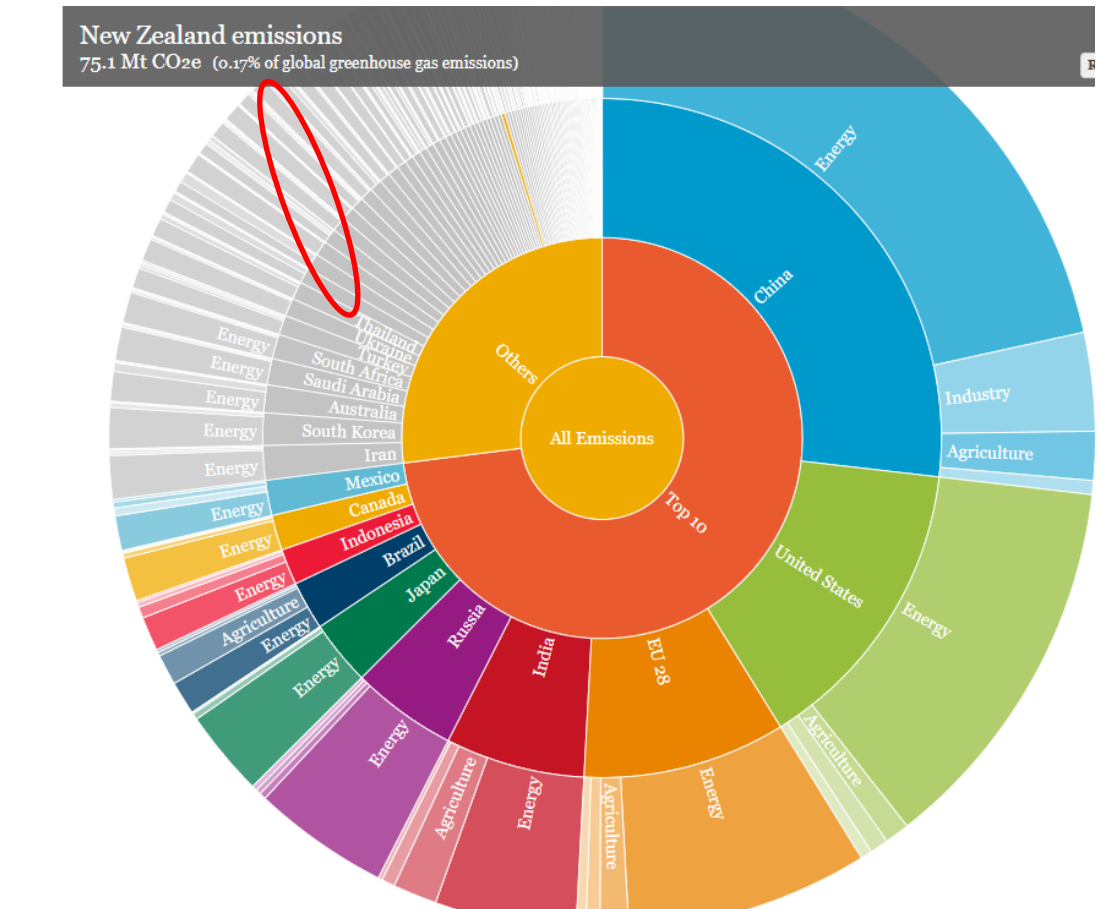
The Global Agricultural Landscape

- Food security/Food production
- Rural Livelihoods – dependency for income
- Growing population and demand for protein
- Social/Cultural importance
- Access to finance for new technologies
- Targets not anticipated until after 2030
- \$\$\$ mentality

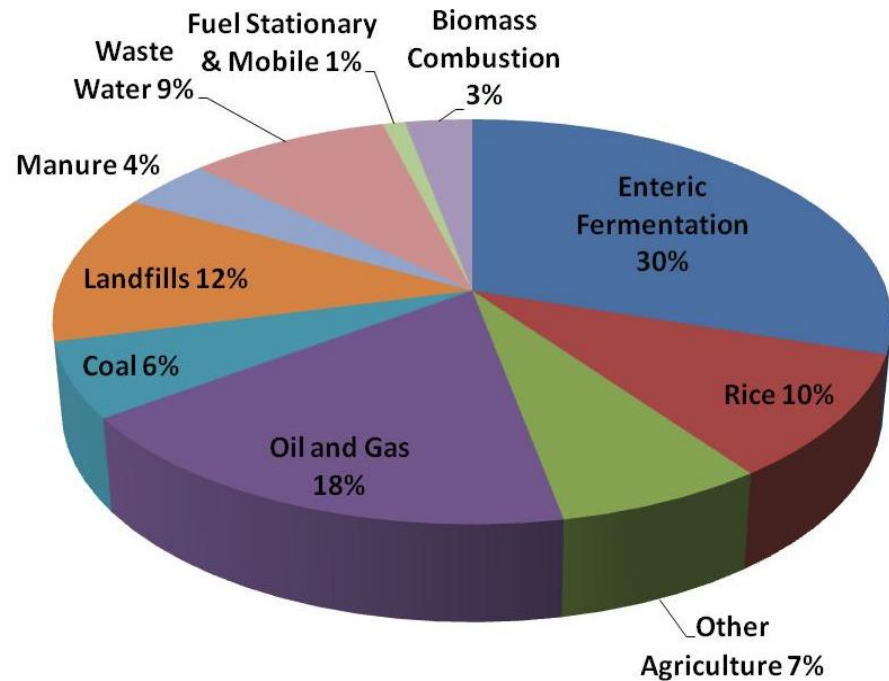


Global Emissions Profile

- Greenhouse gas emissions are dominated by China, USA, and EU and India
- Small emitters account for 30% of emissions
- CO₂ is the dominant greenhouse gas
- Emissions from agriculture are 12-14% of total emissions
- New Zealand's emissions are ~0.2% of global emissions

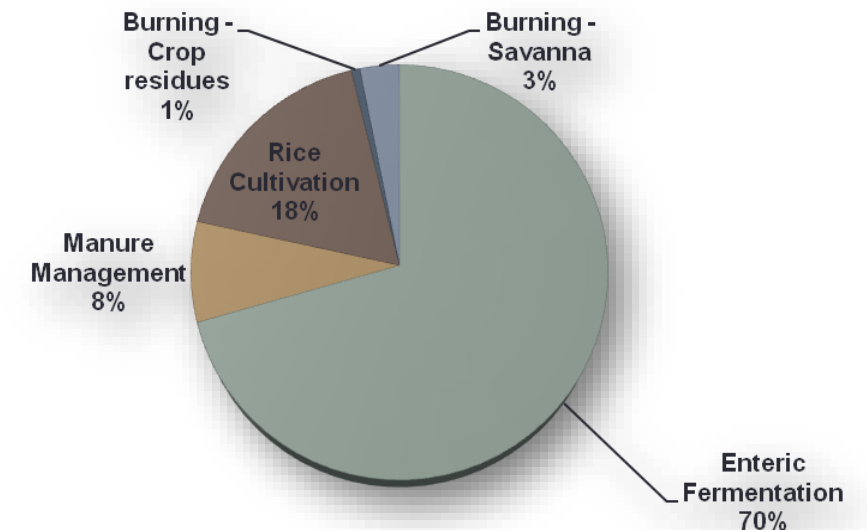


Global Sources of Emissions



Estimated Global Anthropogenic Methane Emissions

by Source



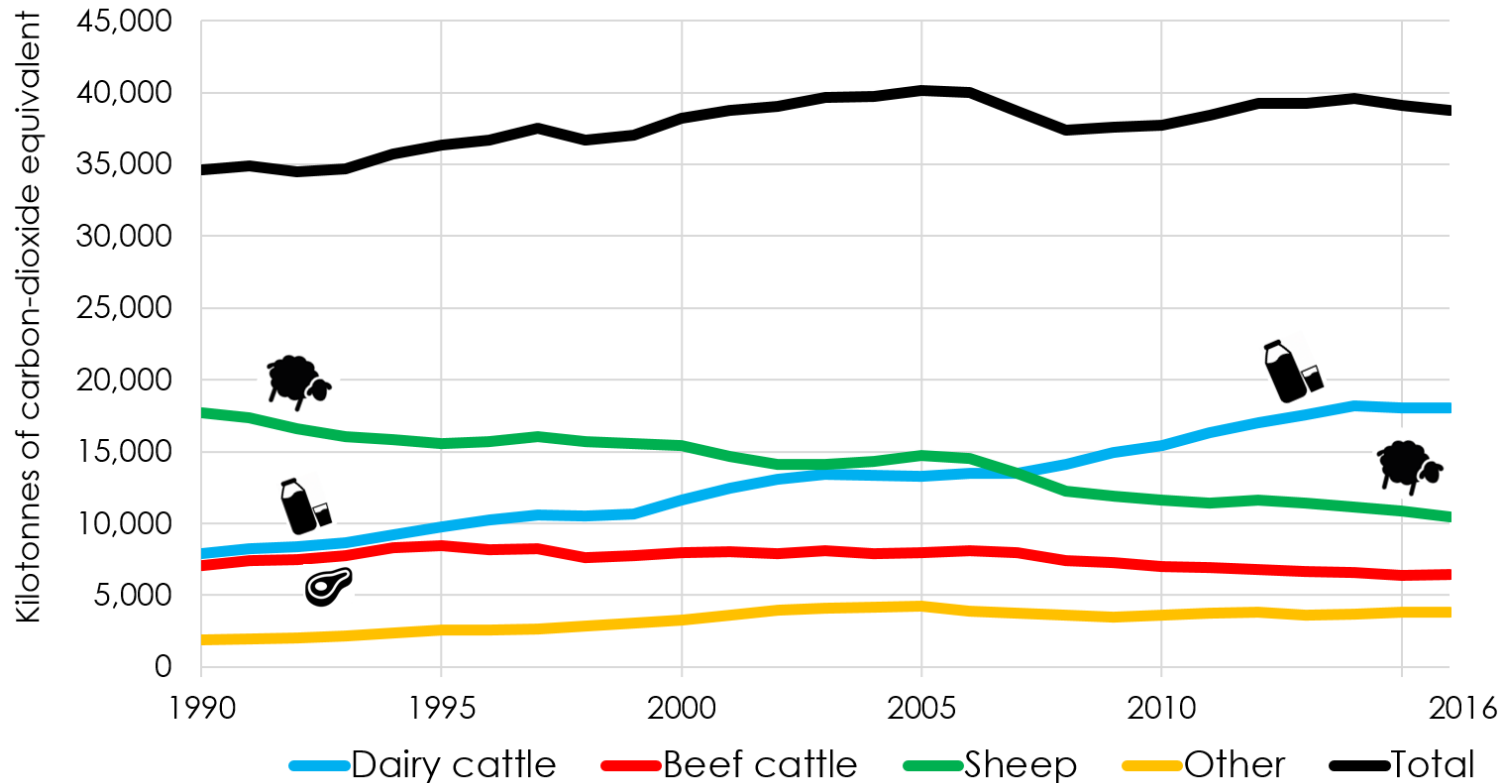
- Methane is a key short lived climate pollutant (or SLCP)
- Agriculture accounts for *approx* 50% of global CH₄ emissions
- Within agriculture, 78% of methane emissions are from livestock
- Methane from enteric fermentation is the most important contributor

Agricultural emissions in New Zealand

Almost half of emissions are from livestock agriculture

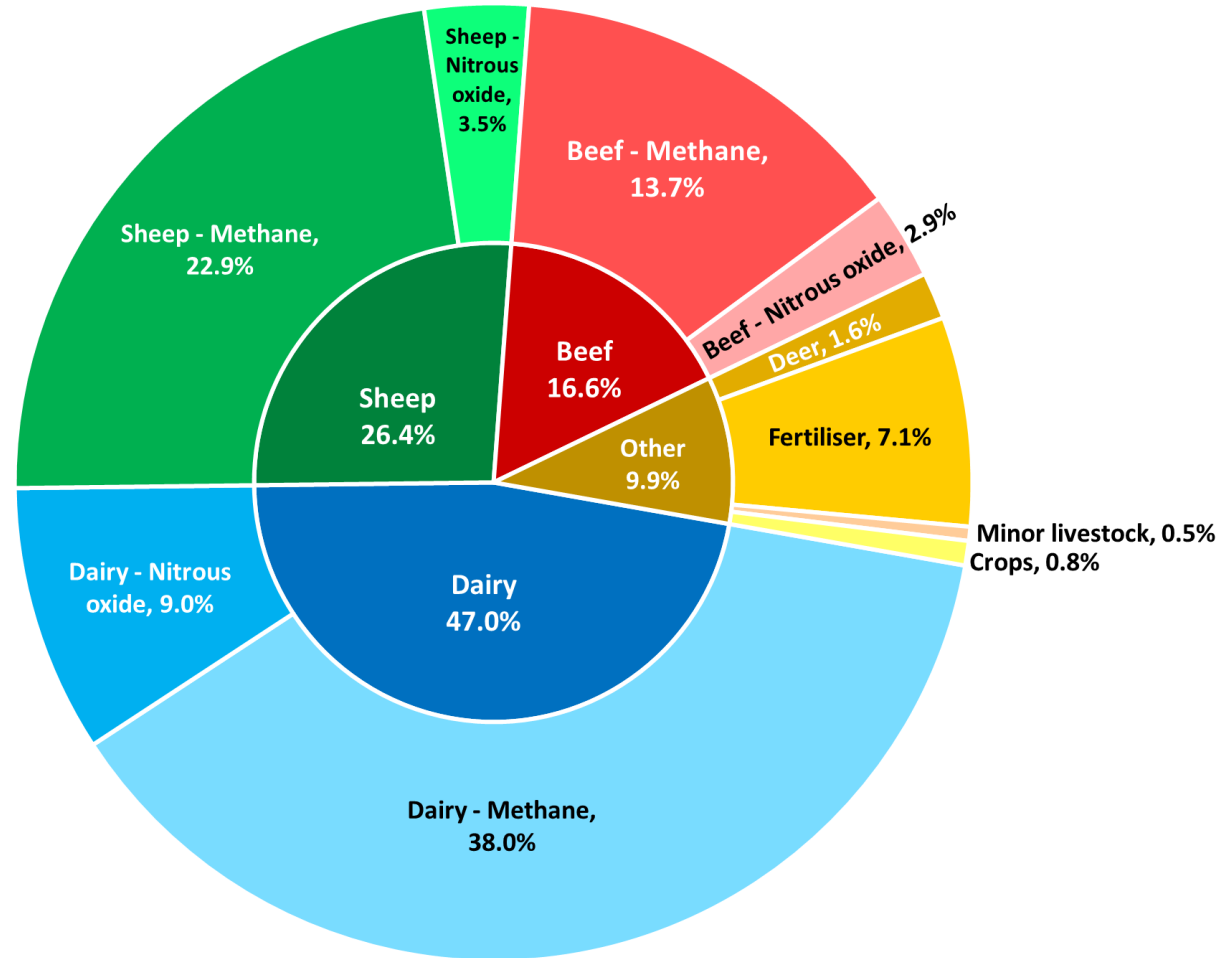
Agricultural emissions in Zealand 1990-2016

For dairy, beef, sheep and other emissions sources



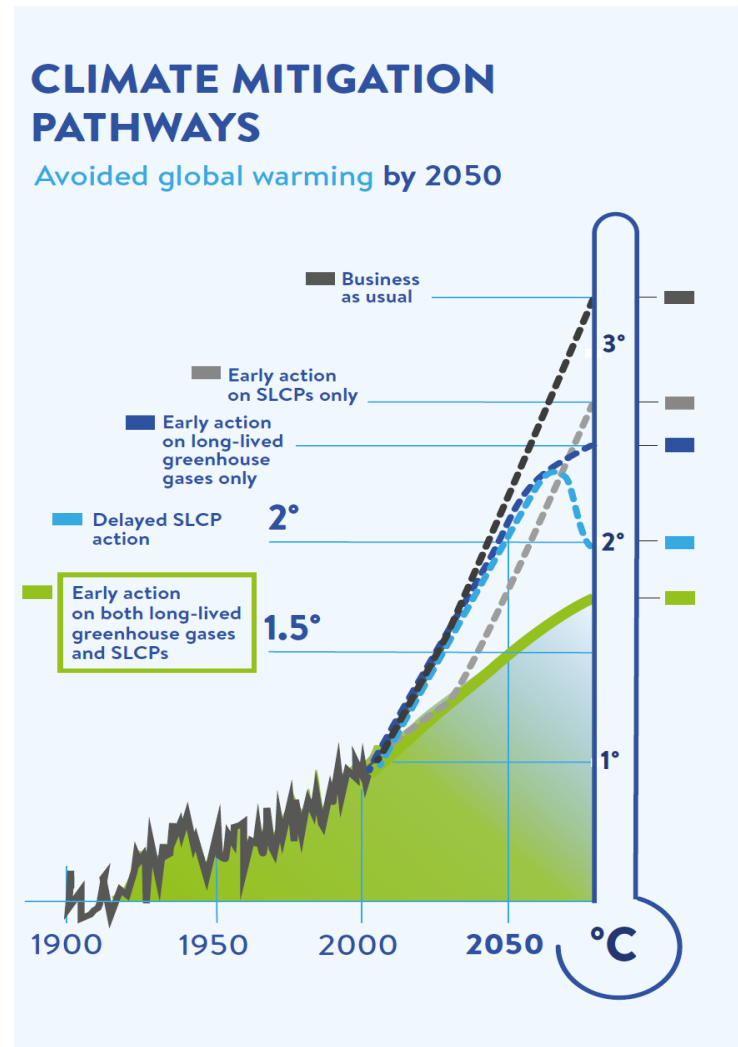
Sources of NZ Emissions from Agriculture

New Zealand Agricultural Emissions Profile in 2015
Percentage of total agricultural emissions

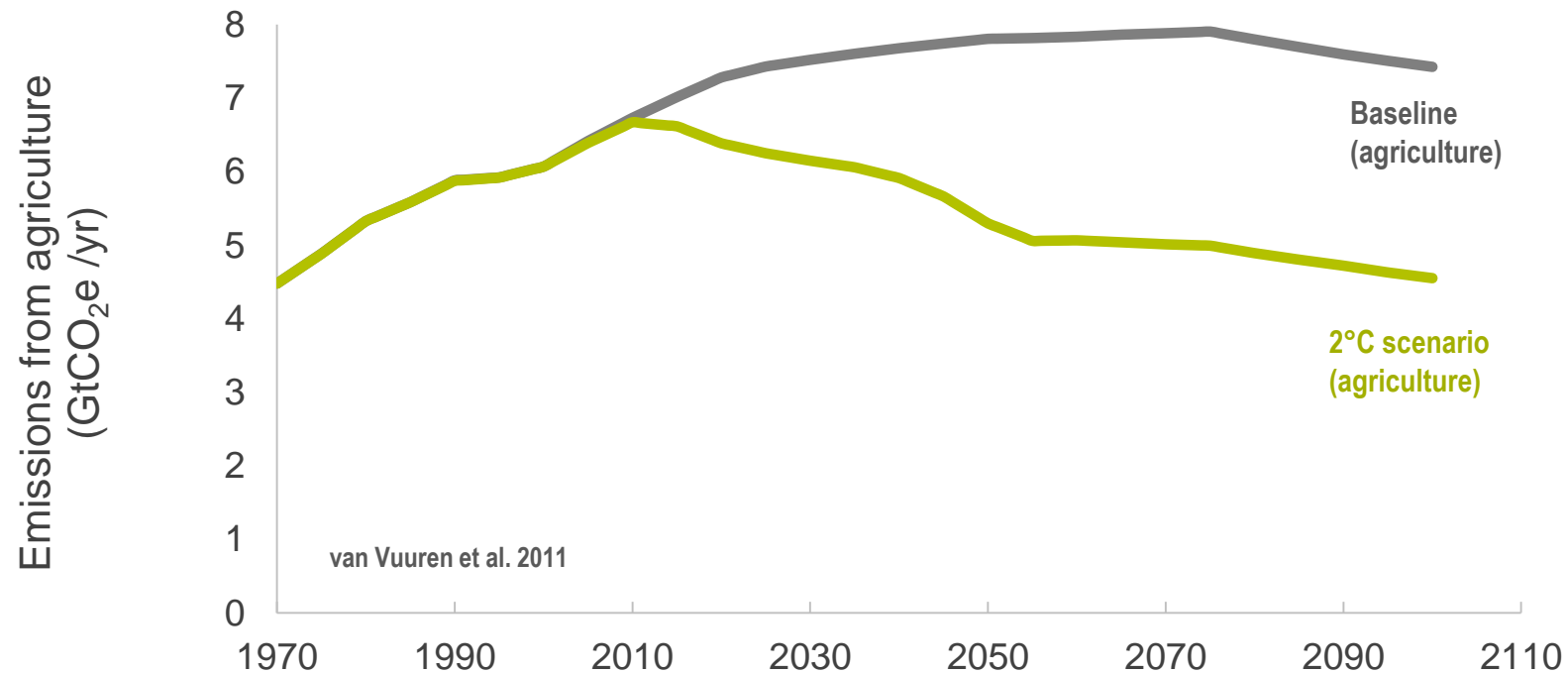


2018 IPCC Special Report on 1.5°C

- Simultaneous mitigation of short-lived climate pollutants and CO₂ is the only possible scenario for achieving the Paris Agreement target.
- Fast and immediate action on short-lived climate pollutants can avoid over half a degree of warming by 2050.



The approach for agriculture reductions

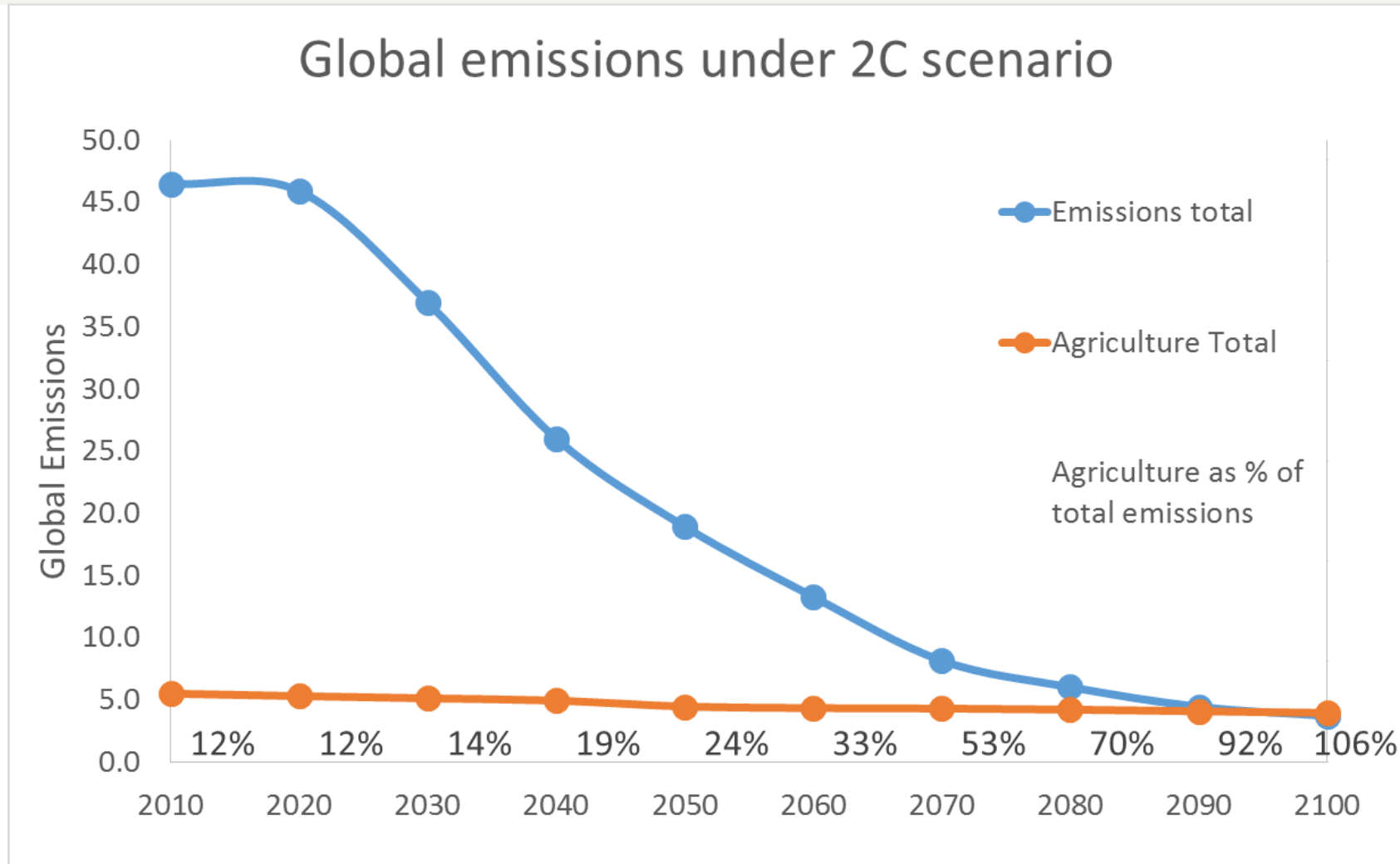


Year	2030	2050	2100
Reduction from BAU	-11 to -18%	-24 to -32%	-39%

Citation

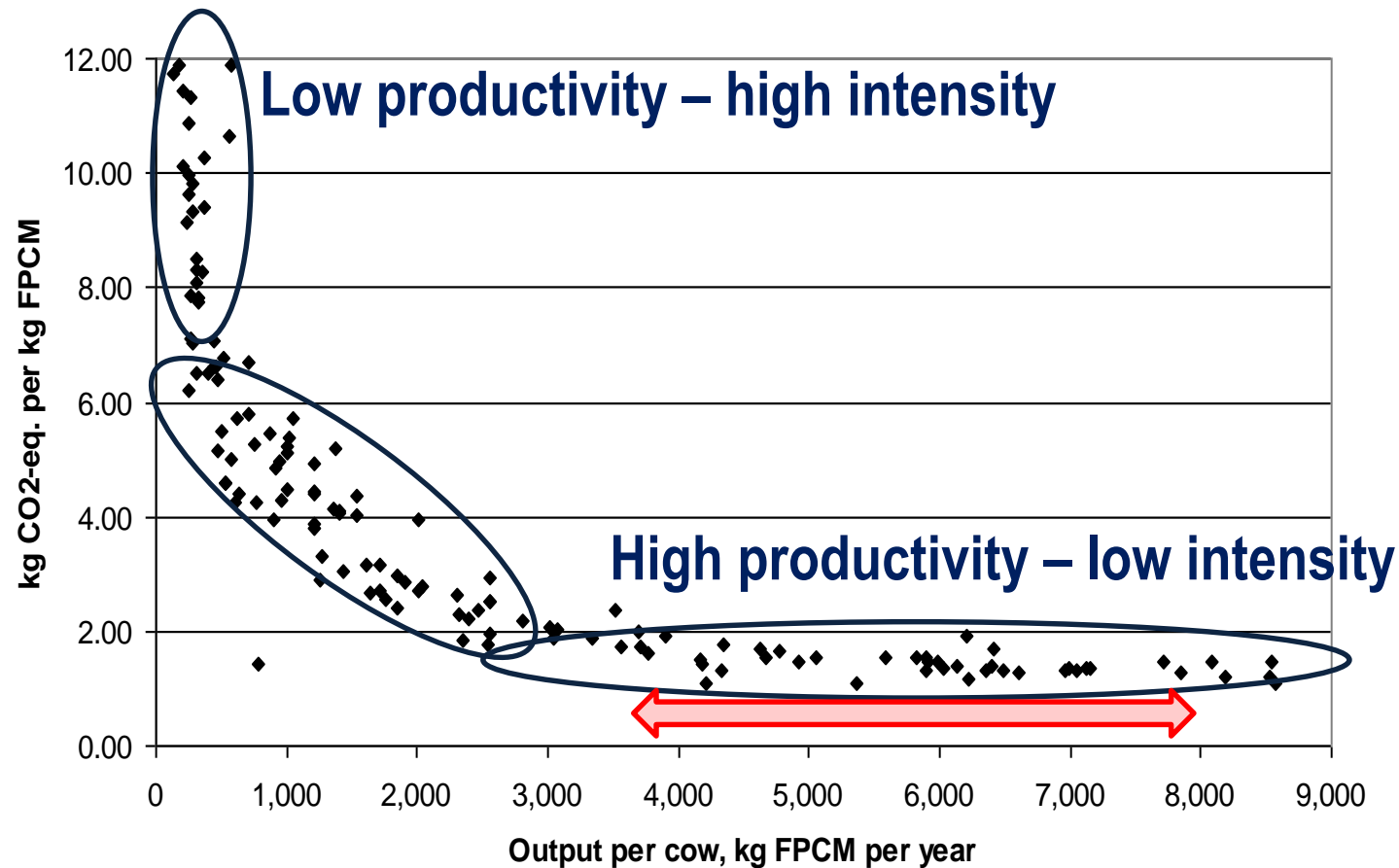
Wollenberg E, Richards M, Smith P, Havlik P, Obersteiner M, Tubiello FN, Herold M, Gerber P, Carter S, Reisinger A, van Vuuren D, Dickie A, Neufeldt H, Sander BO, Wassman R, Sommer R, Amonette JE, Falcucci A, Herrero M, Opio C, Roman-Cuesta R, Stehfest E, Westhoek H, Ortiz-Monasterio I, Sapkota T, Rufino MC, Thornton PK, Verchot L, West PC, Soussana JF, Baedeker T, Sadler M, Vermeulen S, Campbell BM. 2016. Reducing emissions from agriculture to meet the 2°C target. *Global Change Biology*

But agriculture will be the key source of emissions by 2100



(IMAGE model data)

People need to eat. Goal is to produce more food with a smaller footprint

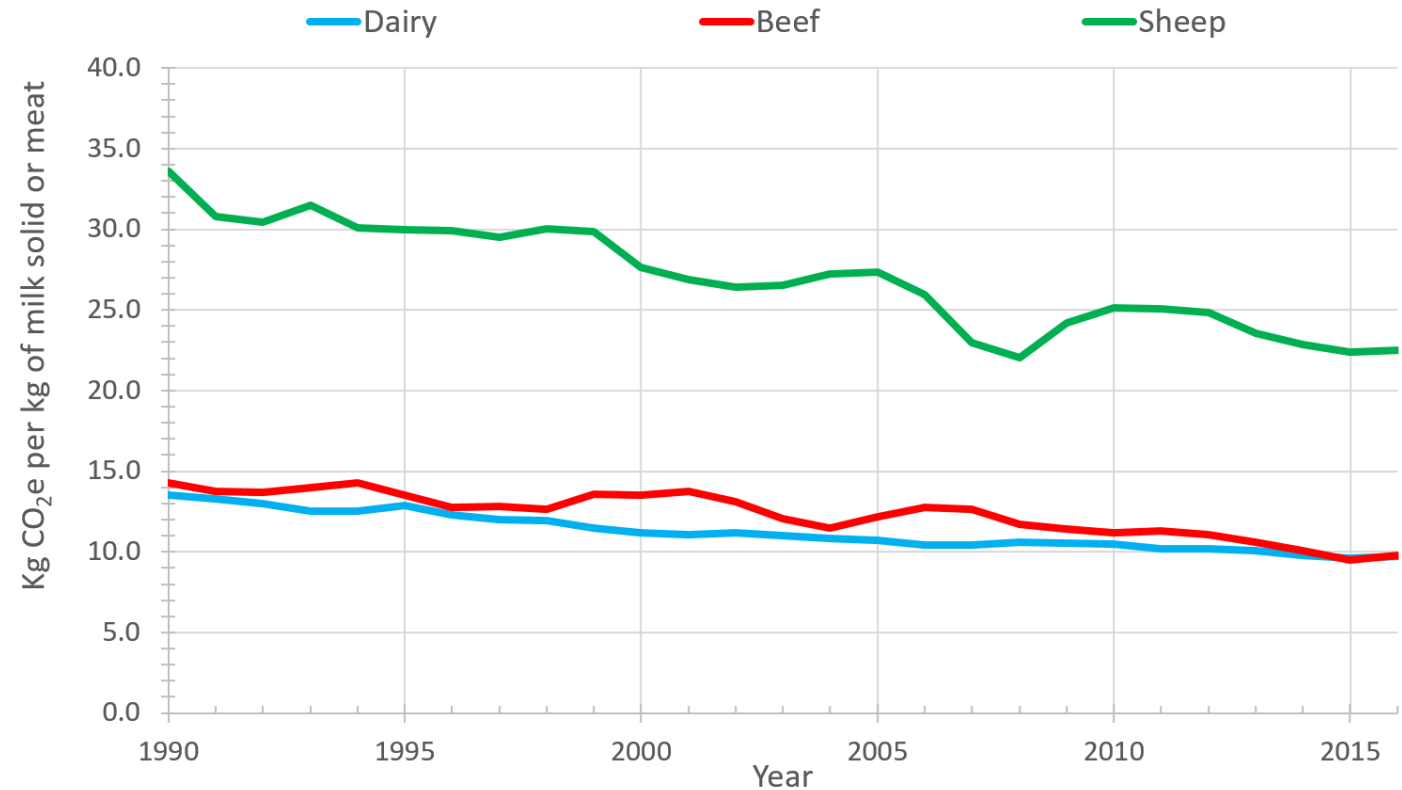


Reductions in emissions intensity

Reduce emissions intensity by:

- Adopting good management practices
- Make additional efficiency gains as fast as possible
- Relevant to the productive system of interest

Emissions Intensity by Major Livestock Category 1990-2015



New Zealand action

Climate change legislation

- Setting the building blocks to support the transition to a low emissions, climate resilient economy
- Whole of economy
- Mitigation and adaptation

International and domestic collaboration

- Global Research Alliance on Agricultural Greenhouse Gases
- Climate and Clean Air Coalition
- Government investment in innovative projects that will create more value from the food and fibre industries

Monitoring and reporting

- Greenhouse gas inventories
- Key to identifying research priorities, emissions hotspots and underpins evidence-based policy development
- International capacity building with others



Questions?



LOTUS
FOODS
RICE IS LIFE®

Did You Know?



- Rice is the major food staple of half the world's population
- More people derive their livelihood from rice than any other human endeavor on the planet
- Flooded rice production, practiced by tens of millions of farmers worldwide, is the 2nd most important agricultural activity contributing to global warming
- More fresh water is used annually to grow rice each year than the #2 and 3 crops combined

Traditional Flooded Field Rice Production



How We Grow Rice Matters



- Each year global rice production consumes **1/4 – 1/3 of the world's renewable freshwater supplies.**
- Rice supplies **20% of the world's dietary energy**, compared to 19% for wheat and 5% for corn.
- Flooded rice paddies emit **5-20% of total man-made emissions of methane gas.**
- 80%- 90% of rice is produced on some **200 million farms** (mostly small-scale and family-owned).

SRI Basics

SRI BASICS

70-90% less seeds.
Younger, easier to
uproot from nurseries
and transplant. Reduces
transplant shock.

Wider spacing of single
seedlings in non-flooded
fields: promotes root,
plant and soil health.

Faster, woman-
friendly weeding.
Intermittent
irrigation= less
methane.


Organic management.
Less/no agrochemicals
= better water quality;
restores habitat for
fish/ducks.




More Crop Per Drop™ (SRI) has the Power to Change Lives & the Planet

“The System of Rice Intensification (SRI) is perhaps the **best current example of options available to farmers and nations to promote community-led agricultural growth, while managing soil and water resources more sustainably** and even enhancing their future productive capacity.”

- Directors of Oxfam America, WWF International, Africare, 2010




MORE CROP PER DROP™



Growing Rice Water Smart,
Women Strong & Climate Wise

50% less 90% less 40% less 3X more



water + seed + methane = rice

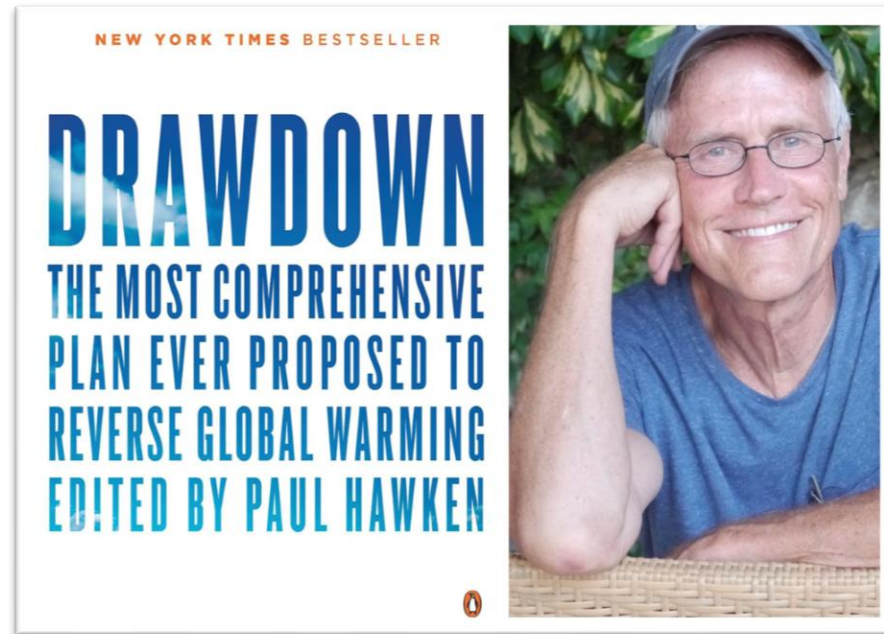
- Increased Farmer Profits
- Requires Less Seed
- Higher Yields
- Improved Women’s Health
- Less Climate Impact
- No Pesticides
- Less Manual Labor



Higher yield MCPD™ rice on right

SRI and Climate Change Impact

- If the changes in methane and nitrous oxide emissions from SRI rice paddies are converted to **global warming potential** (GWP) as CO₂-equivalent, it has been found that net GHG reductions with intermittent irrigation have ranged between 20% and 40%, and even up to 73%.
- Drawdown estimates that SRI could scale from 8.4 million to 133 million acres by 2050, with a savings of about 3 gigatons of carbon dioxide equivalent – at no additional cost. Further, it would be result in the additional production of about 477 million tons of rice, earning farmers an additional \$678 billion in profit!



#53

System of Rice Intensification

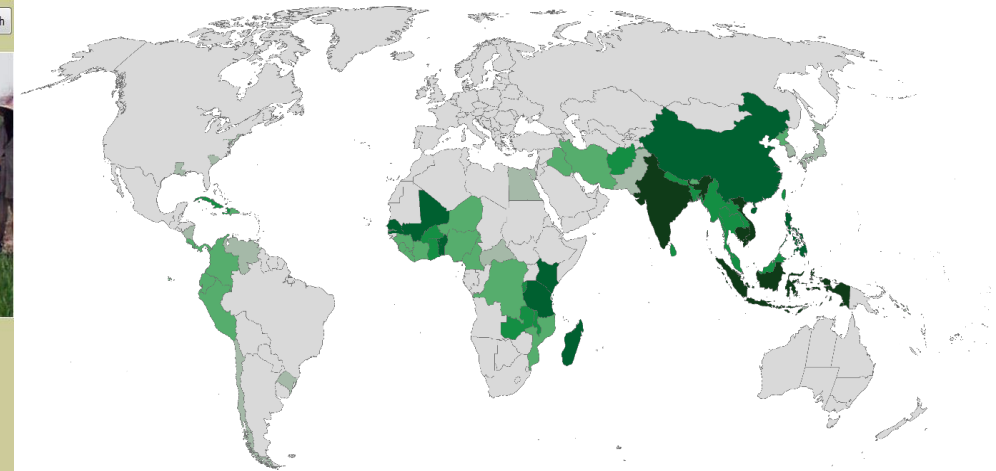
3.13 Gigatons Reduced CO₂
\$677.8 Billion Net Savings

And the SRI-Rice Center will

- expand on-line services to partners in 60+ countries
- build the global SRI research network
- strengthen national SRI networks worldwide



The screenshot shows the SRI-Rice website homepage. At the top left is the SRI-Rice logo with the text 'System of Rice Intensification (SRI)'. To the right are two search boxes: 'Search the SRI-Rice Website' and 'Search our Research Database'. Below the header is a large photo of a diverse group of farmers in various traditional and modern clothing standing in a rice field. A navigation menu below the photo includes 'Home', 'About Us', 'SRI-Rice News', 'Upcoming Events', 'Latest Resources', and 'Contact Us'. On the left side, there are sections for 'About SRI' (Methodology, FAQs, Origin of SRI, Other Crops) and 'Countries and Regions'. The main content area features a 'Welcome to SRI-Rice Online!' message and a section titled 'Basic SRI methods include:' with three small images and captions: 'Carefully transplant single', 'Plant seedlings at a distance of', and 'Keep soil moist and aerated.' At the bottom right, there is a 'Translate this page:' button and social media icons for Twitter, YouTube, Facebook, LinkedIn, and RSS.



DO THE RICE THING

MORE CROP PER DROP™

Growing Rice Water Smart,
Women Strong & Climate Wise



MORE CROP
PER DROP®



LOTUS
FOODS
RICE IS LIFE

Discussion



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What is SRI

