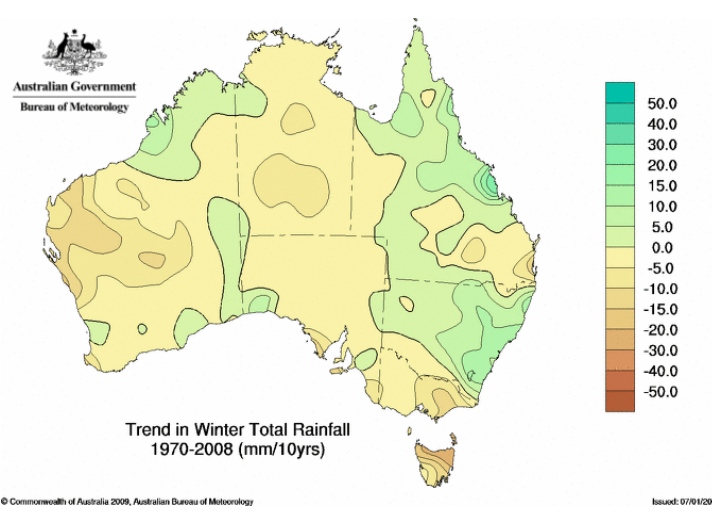
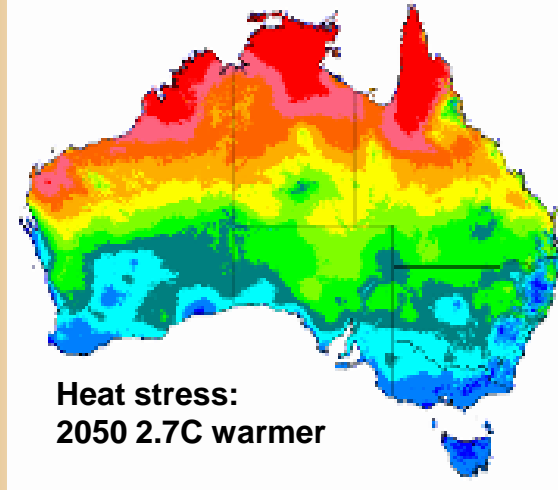
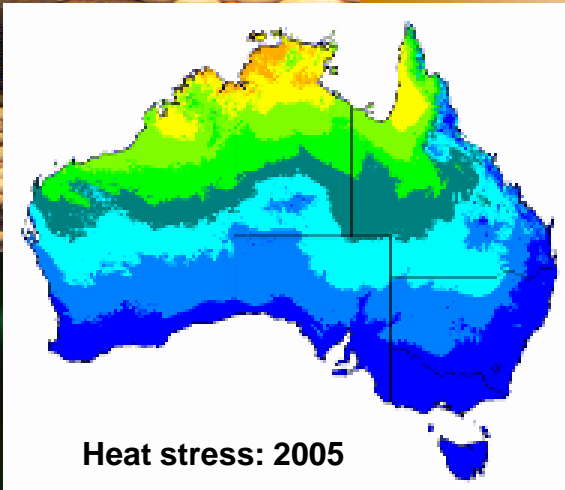


Climate Change – Grain Crops



Drought Tolerance Technology



Frost Affected Barley Heads



Plants in Frost Chamber



Biomass Enhancement

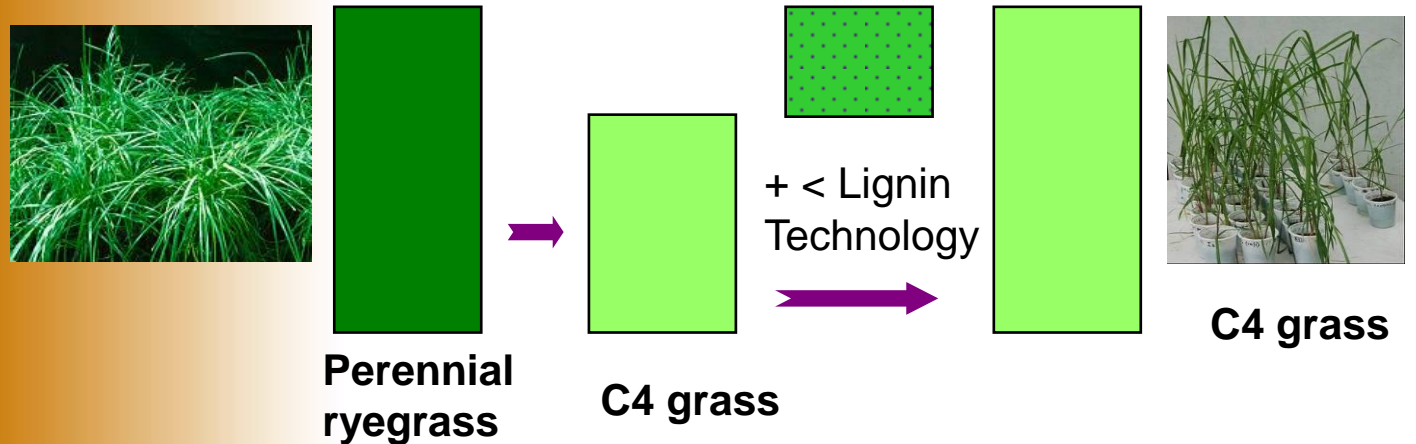


Seed Yield Enhancement



Plant Adaptation

Energy/ha



DuPont/Pioneer - Cash Funded Collaboration

3 ARC Linkage grants leveraged from this money

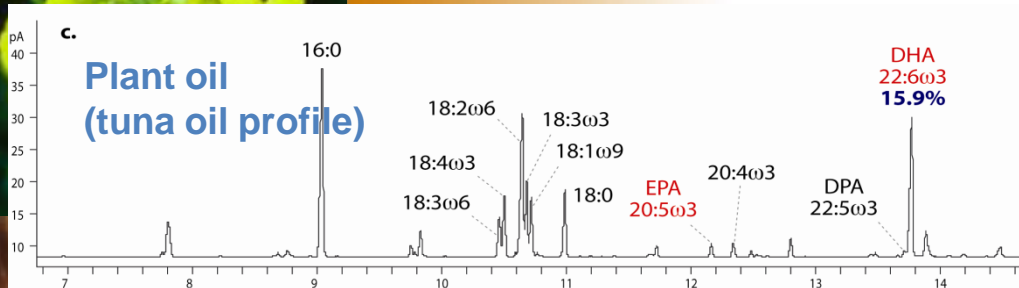
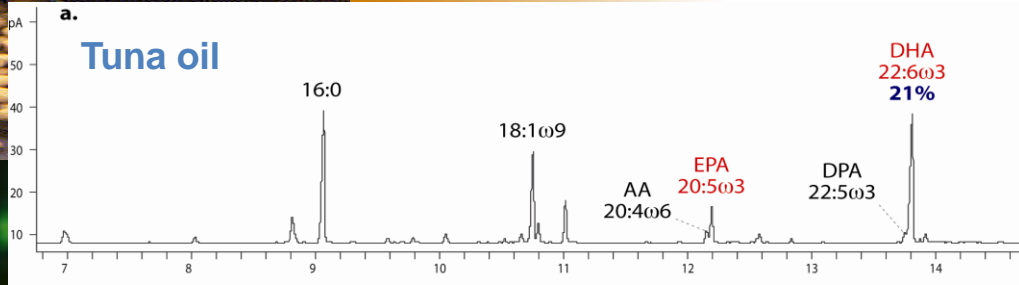
Projects in:

- Drought (transcription factors)
- Nitrogen Use Efficiency (NUE)
- Cell Wall Biosynthesis (Lodging)

Outcomes for delivery

- ACPFG delivers outputs in wheat and barley (main Australian cereals)
- DuPont/Pioneer delivers in Maize and Soy
- Other crops are shared





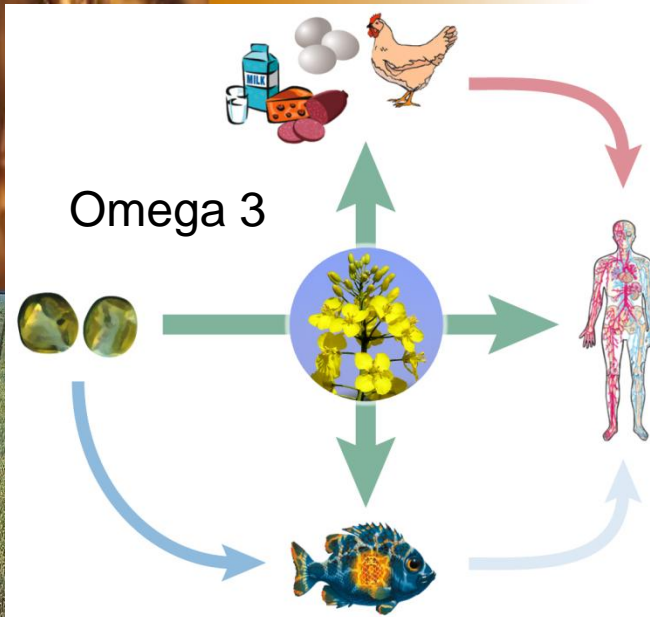
Normal wheat flour



High Amylose flour

Positive changes in key bowel health biomarkers in two separate rat feeding trials.

No negative impacts observed





H E X I M A

Diverse Pipeline of Technologies



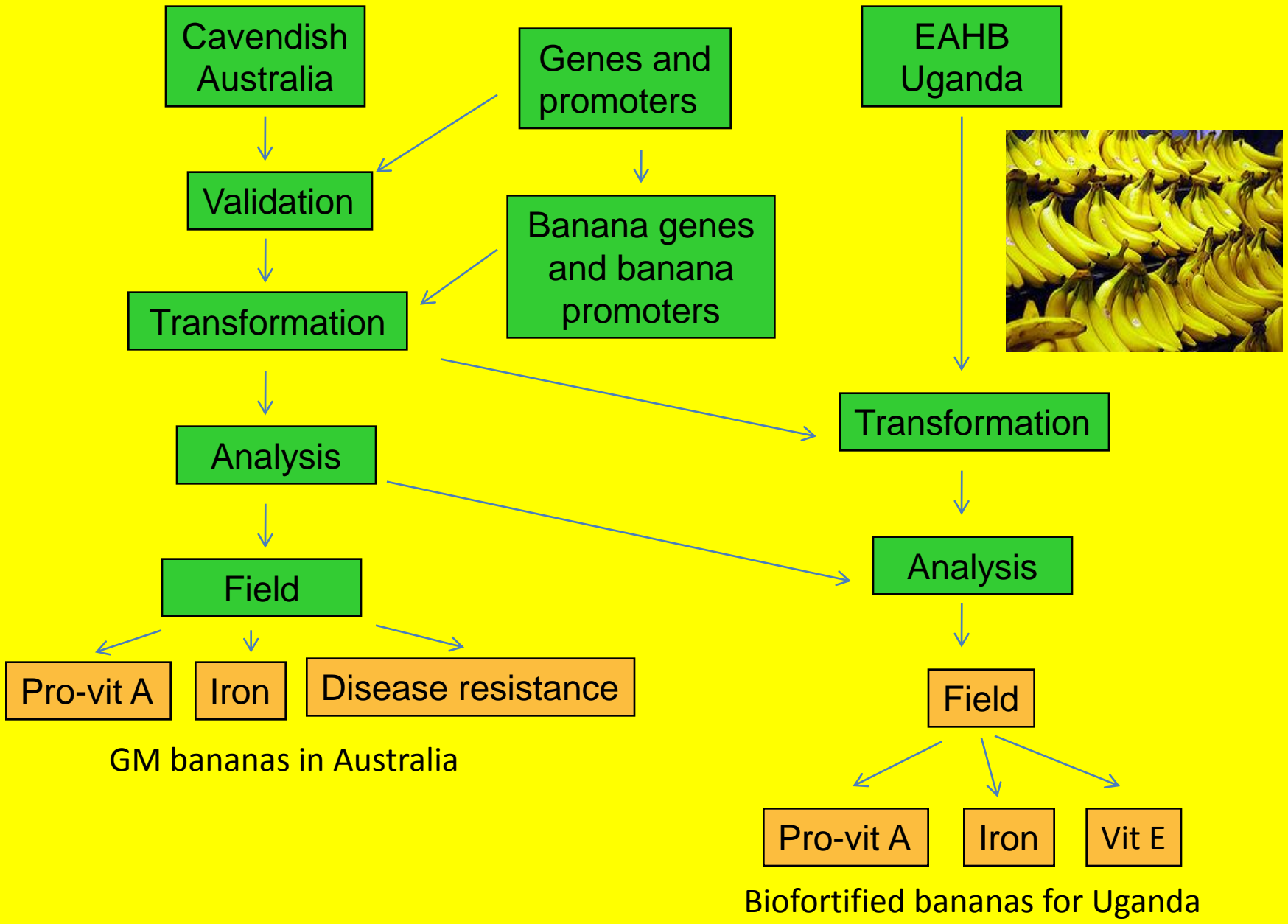
PIONEER
BRAND • SEEDS

	Defensin Technology (Disease Resistance)	Multi-gene Expression Vehicle (MGEV)	Proteinase Inhibitor Technology -2 nd Gen (Insect Resistance)
Status	Stage II	Stage I	Stage I
Commercial Partner	DuPont/Pioneer	In discussions	In discussions
Field tested	Cotton	Cotton	Cotton
Lab tested	Canola, Cotton	Cotton + Other	Cotton, Field pea + Other
Value proposition	Disease protection Yield improvement	Time & cost savings, Small protein expression, Stacking	Chemical displacement, Resistance management
Initial launch crops	Corn & Soy	Corn , Soy & Cotton	Cotton
Secondary crops	Canola, Sugar Beet, Wheat, Other	Multiple	Corn, Sugarcane, Other
Key markets	USA, Brazil, India, AUS, ARG, China	Multiple	India, USA, AUS, Brazil, China
Key market area	~300m Ha		~117m Ha

Bananas: the world's most important fruit crop

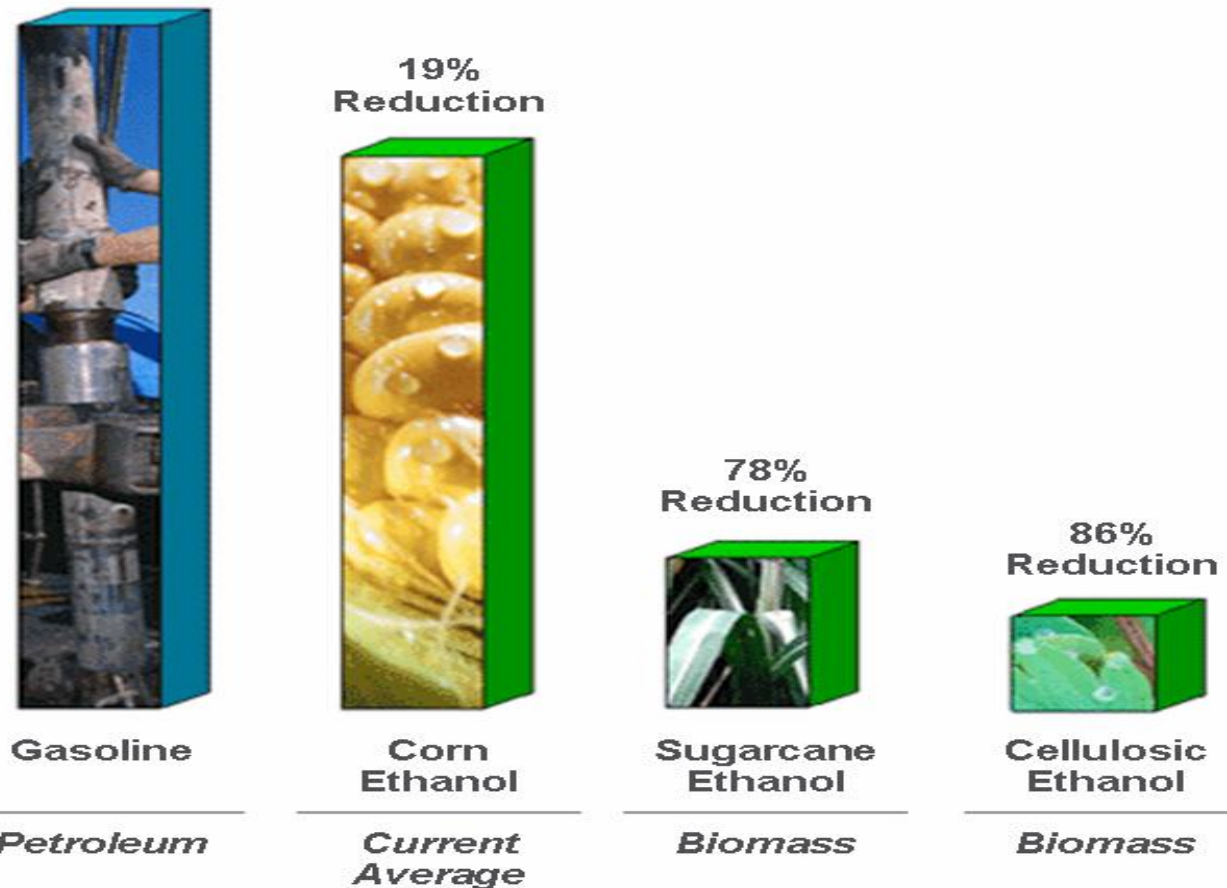
- Nutrient biofortification for East Africa: pro-vitamin A, vitamin E and iron (Bill and Melinda Gates Foundation)
- Disease resistance for Australia and East Africa: Fusarium wilt, Sigatoka and bunchy top (Bill and Melinda Gates Foundation and Australian Research Council)





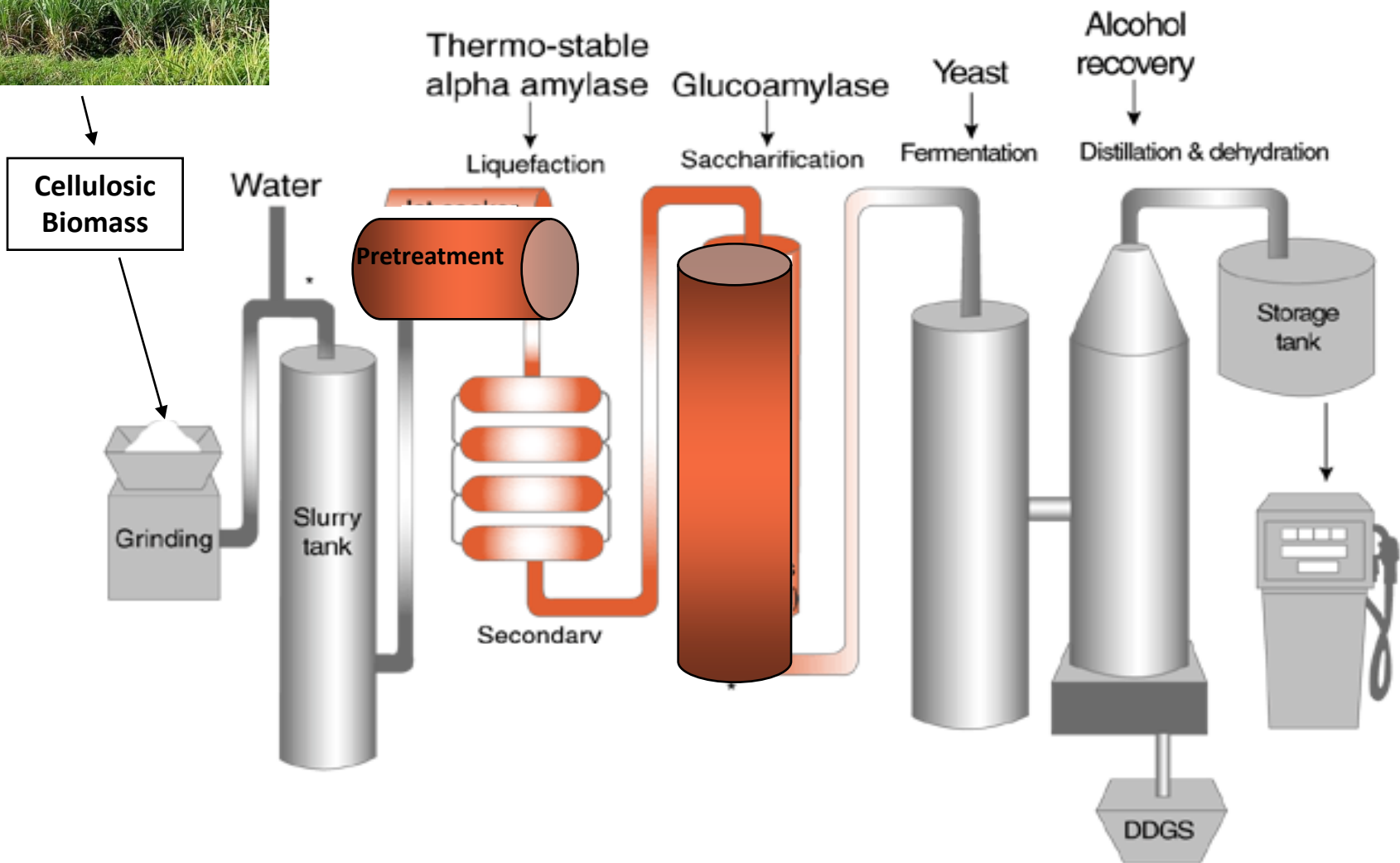
Renewable Energy

Greenhouse Gas Emissions by Transportation Fuel
And Type of Energy Used in Processing



Bio-Fuels from Sugar Cane

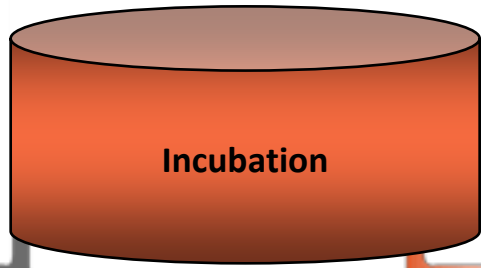
Conventional ethanol production process



In Planta Cellulosic Ethanol Production Process

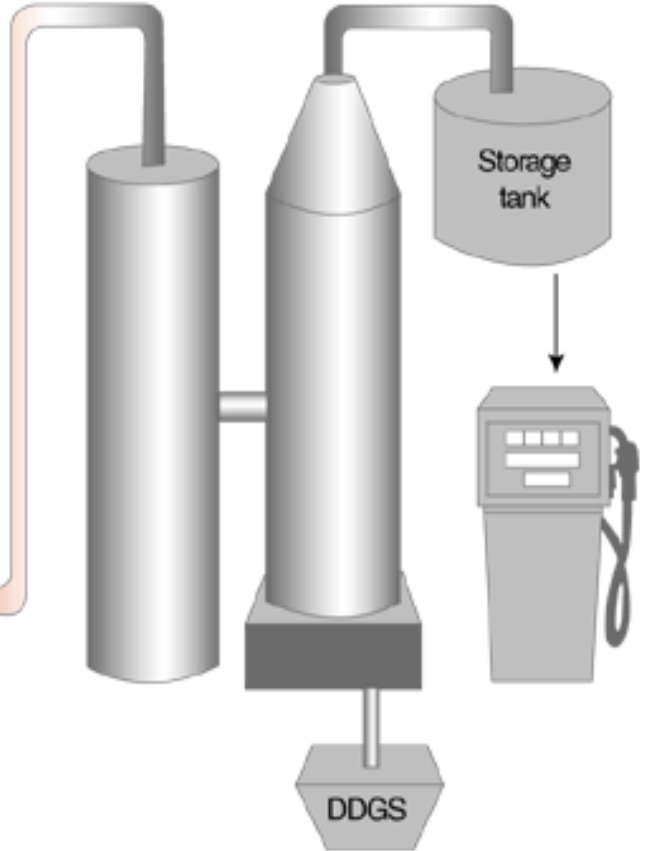


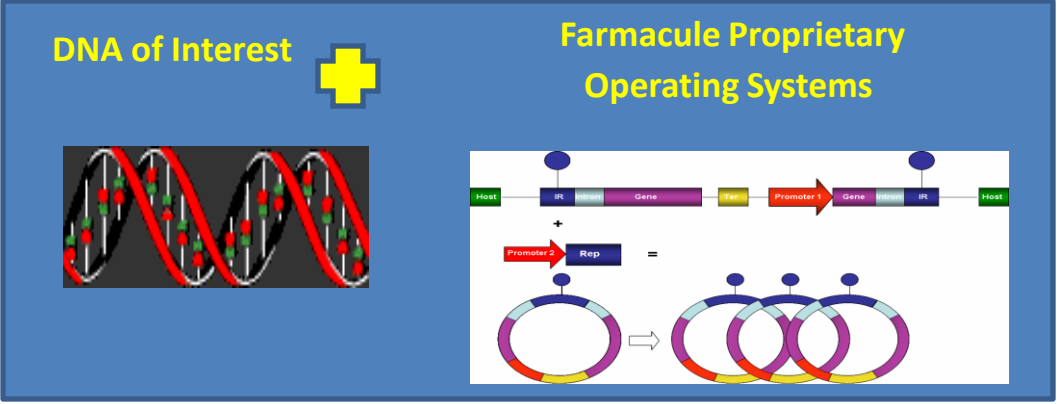
GM Cellulosic Biomass



Yeast
↓
Fermentation

Alcohol recovery
↓
Distillation & dehydration





Standard Plant



Genetically Enhanced Plant (Protein-rich)



Large scale



Small scale

Commercial Applications for Protein of Interest



Industrial



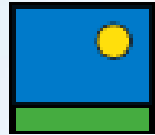
Therapeutic & Medical Applications



Bio Ethanol

NATION-WIDE APPROACH

A CLEAR STRATEGY



agriseeds

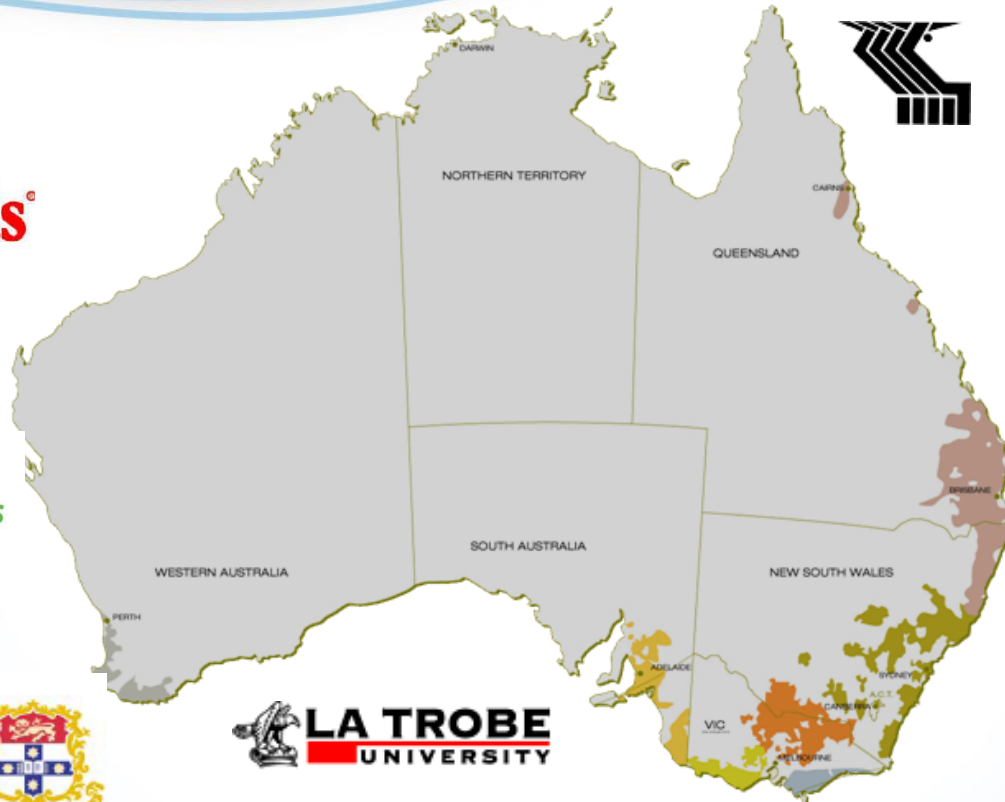
Heritage
SEEDSTM INC.

PGG Wrightson Seeds

mia



LA TROBE
UNIVERSITY



Genetics
AUSTRALIA
Breeding for Profit



State Government
Victoria

Department of
Primary Industries



Dairy
Australia
Your Levy at Work



Dairy Futures
CRC

NATION-WIDE APPROACH

A CLEAR STRATEGY

Plant



Forage supply
Forage quality
Animal Health
Milk composition

Rumen microbes



Feed efficiency
Milk composition
Methane

Animal



Core genetic traits
eg Protein%
Milk composition

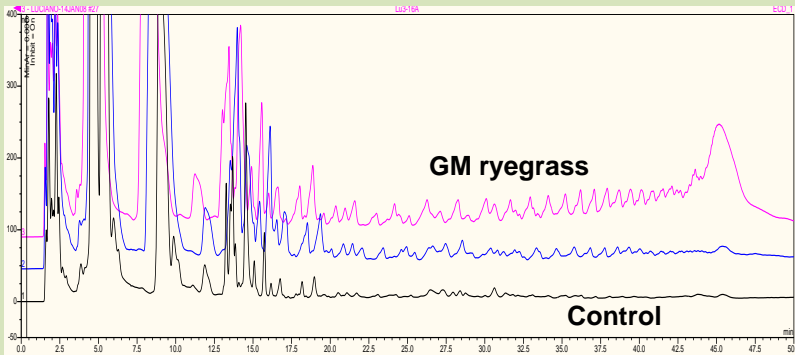
Factory



Processing

High Energy Grasses

Increased Fructan (Sugar) Content



Decreased Lignin Content



Control



GM - 1



GM - 2





19 6:11