



Government of **Western Australia**
Department of **Water and Environmental Regulation**

Unique partnerships and collaborations for Sustainable Agriculture in Western Australia

An aerial photograph showing a wide estuary with a winding river channel, sandy banks, and a coastline with waves breaking on a beach. The water is a mix of blue and brown, indicating sediment flow.

REGIONAL
ESTUARIES
INITIATIVE

Deborah Holtham

Overview

- Regional Estuaries Initiative
- Sustainable agriculture projects
- Partnerships and collaborations



Perth



REGIONAL
ESTUARIES
INITIATIVE

The five strategies

Sustainable agriculture



reduce nutrient
run-off from
agricultural
activities

Regional capacity

Sustainable
agriculture



Water in
the landscape



Innovative
remediation



Science for
management

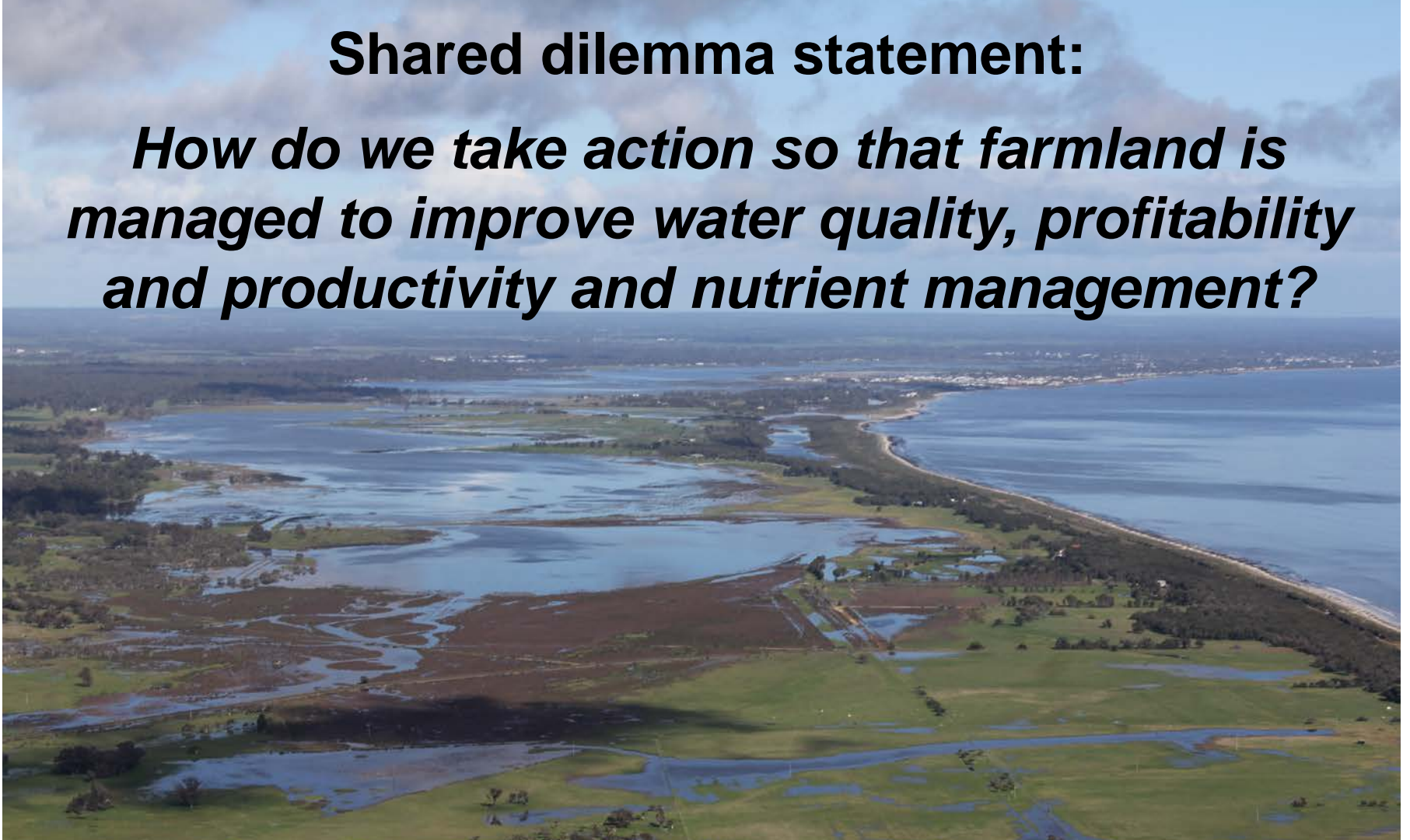


REGIONAL
ESTUARIES
INITIATIVE



Shared dilemma statement:

How do we take action so that farmland is managed to improve water quality, profitability and productivity and nutrient management?



Project Reference Group – unique collaboration

Government Departments

Fertiliser industry

Dairy farmers

Catchment councils

Dairy industry

Beef farmers



Sustainable agriculture for healthy estuaries



Fertiliser management



Dairy Effluent management



Dairy effluent management

DairyCare project





Fertiliser management Soil testing program



GOVERNMENT OF
WESTERN AUSTRALIA

Department of **Water and Environmental Regulation**

Department of **Primary Industries and Regional Development**





Soil testing - whole farm nutrient mapping

- 30 cores from every paddock
- pH, N, P, K, S, etc.





Soil testing results

PADDOC_K_num	pH_1_5_CaCl2	pH_1_5_H2O	EC_1_5_H2O_dSm	Organic_carbon_Walkley_black_prcnt	Nitrate_nitrogen_KCl_mgkg
1	5.2	5.8	0.717	3.76	4
2	5.2	5.9	0.101	3.05	1
3	5	5.9	0.211	2.43	1
4	5.1	6	0.241	3.11	1
5	4.7	5.4	0.479	3.74	1
6	4.6	5.5	0.666	3.3	1
7	4.5	5.5	0.237	3.36	1
8	4.2	5.2	0.189	3.41	
9	4.8	5.7	0.228	3.1	1
10	4.6	5.6	0.079	3	
11	4.7	5.5	0.58	2.29	
12	4.3	5.3	0.099	2.73	
13	4.7	5.5	0.209	3.3	1
14	4.6	5.4	0.365	3	
15	4.3	5.3	0.229	2.53	1
16	4.6	5.6	0.087	2.41	
17	4.5	5.5	0.327	2.7	
18	4.6	5.6	0.057	2.14	
19	4.9	5.7	0.277	3.76	2
20	5.2	6	0.274	3.04	1
21	4.7	5.4	0.645	3.54	
22	4.4	5.4	0.072	2.56	
23	4.8	5.5	0.443	2.74	6
24	4.7	5.4	0.301	3.61	16
25	4.3	5.3	0.074	2.42	8



inc_DTPA_mgkg	Manganese_DTPA_mgkg	Iron_DTPA_mgkg	Boron_hotCaCl2_mgkg	Chloride_H2O_mgkg	Aluminum_CaCl2_mgkg
2.81	2.12	173.16	0.9	4	2
3.97	3.22	94.89	0.5	4	1.7
1.14	5.13	85.28	0.5	4	4.2
2.42	4.38	123.74	0.6	3	1.7
1.68	5.22	231.6	0.6	5	3.3
2.47	5.28	235.59	0.5	5	2.5
1.85	12.08	239.21	0.5	4	4
2.67	2.06	163.08	0.5	3	9.7
2.5	8.88	138.17	0.6	4	2.1
1.2	9.38	73.76	0.4	5	3.7
0.95	3.74	257.44	0.5	5	2.1
0.86	4.6	74.01	0.4	3	4
1.34	5.85	219	0.4	4	3.9
1.64	4.68	155.96	0.4	3	2.2
1.2	2.29	166.93	0.3	4	6.6
1.83	9.96	66.74	0.3	3	2.9
1.84	4.95	205.9	0.5	4	4
1.38	5.63	47.57	0.3	4	4.5
2.61	7.92	177.04	0.5	3	0.8
2.06	4.01	129.31	0.5	4	1.1
1.42	6.77	247.31	0.6	3	2.1
0.88	12.67	90.83	0.3	5	4.1
1.18	2.12	238.19	0.4	4	2.4
1.99	4.56	100.7	0.6	2	4.1
1.43	6.71	73.04	0.2	5	5.5

Farmer Workshops



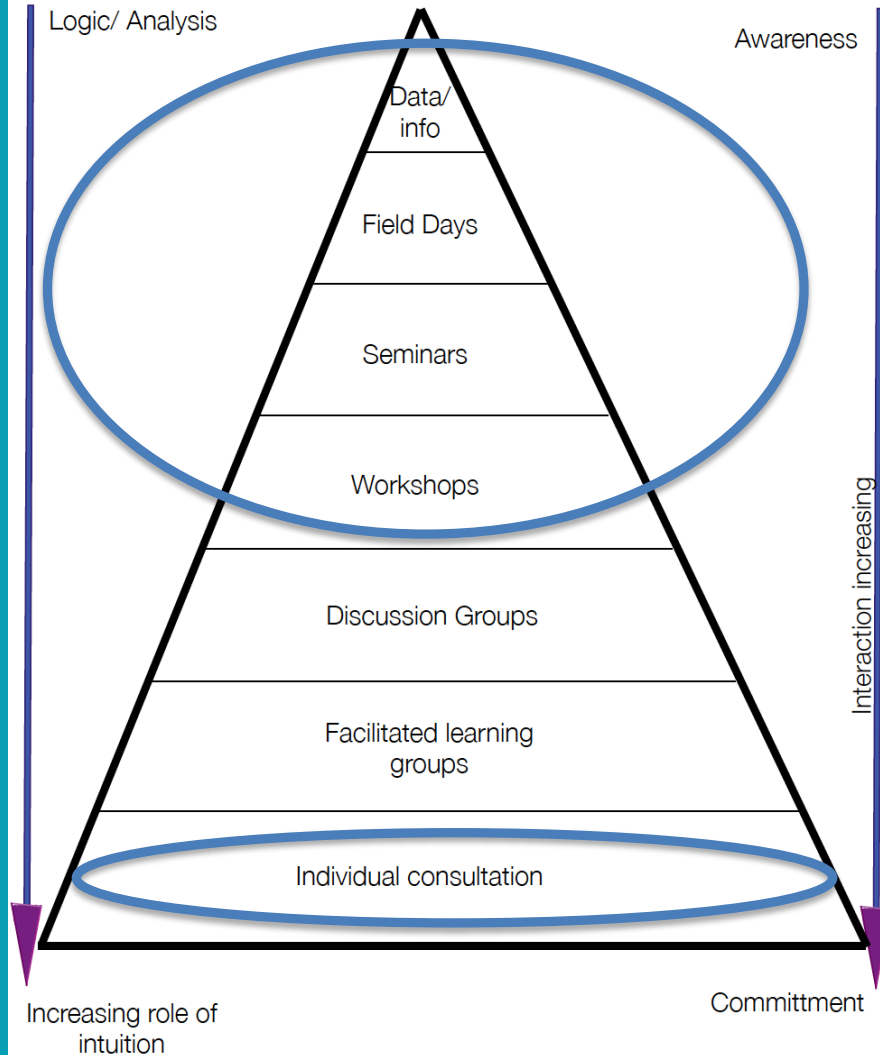


Fertiliser field days

Accu-Spread field days Calibration of spreaders



Activity types



Extension activities -
raise awareness

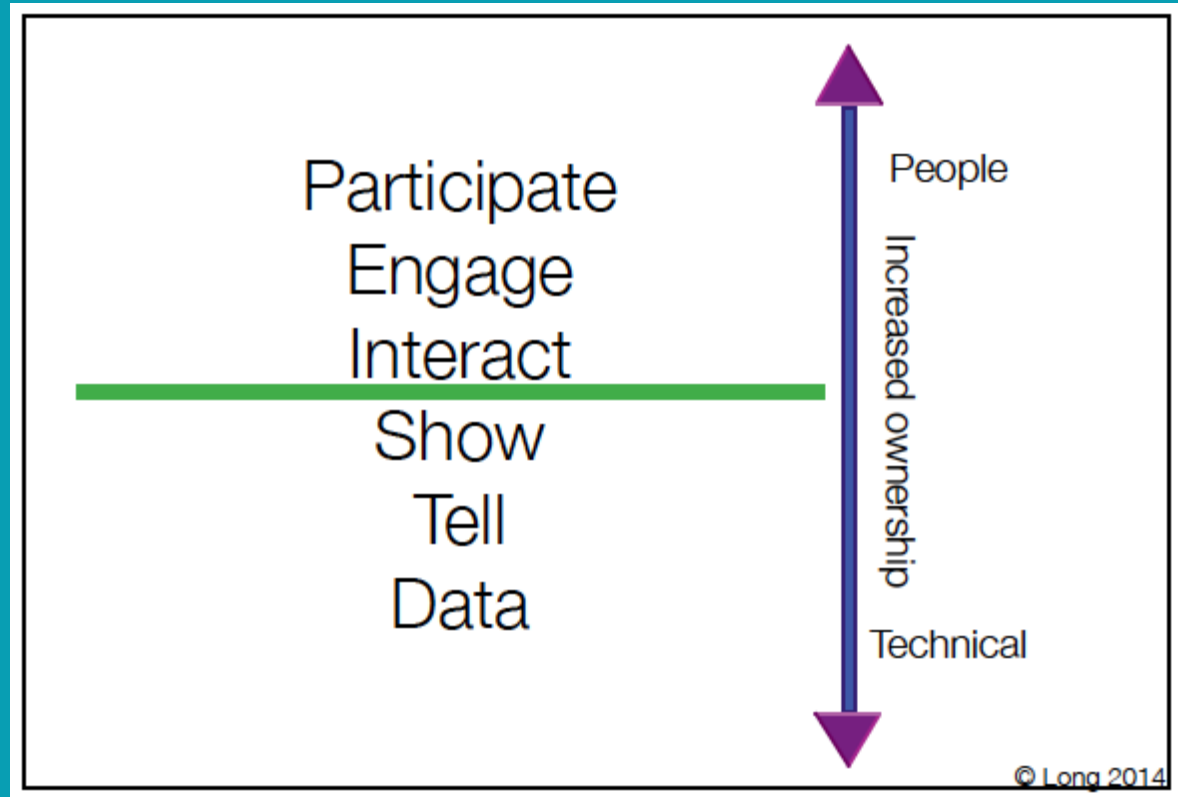
Commitment –
to practice change

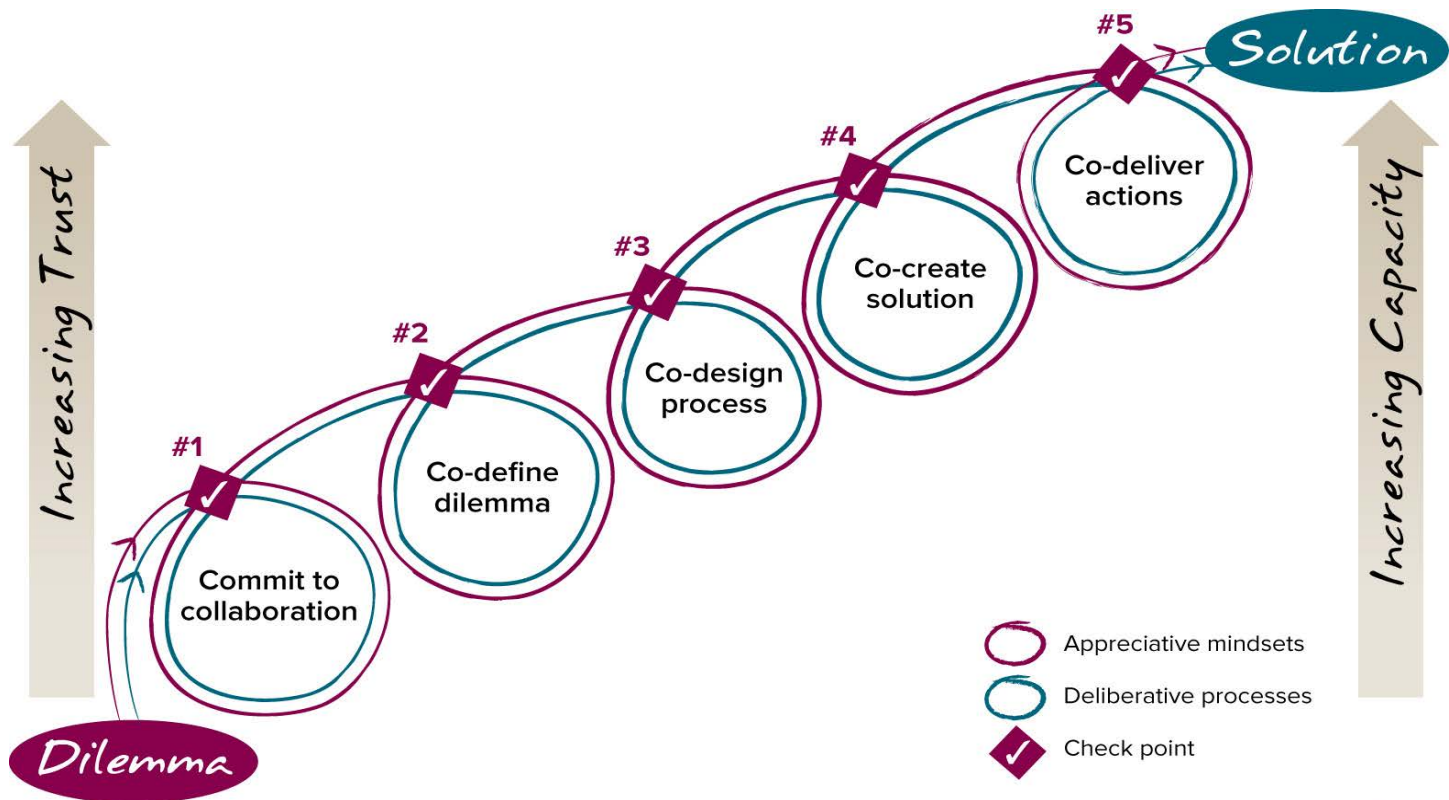


Fertiliser management – agronomic advice



Work WITH people to create change



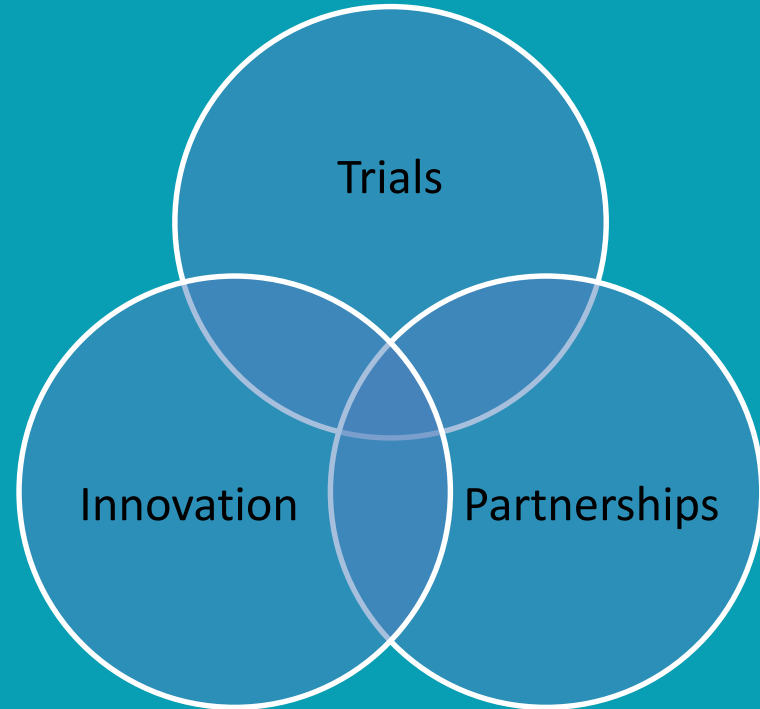


Build readiness • Build relationships • Build capability

APPRECIATIVE MINDSETS + DELIBERATIVE PROCESSES = ENDURING SOLUTIONS



Fertiliser management – uPtake



Unique partnerships and collaborations

- Project Reference Group
- Technical Reference Group
- Communication & Extension Group

Government Departments
Catchment Councils
Natural Resource Management Groups

Scientists
Researchers

Consultants
Independent agronomists

Fertiliser Industry
Dairy industry
Beef industry

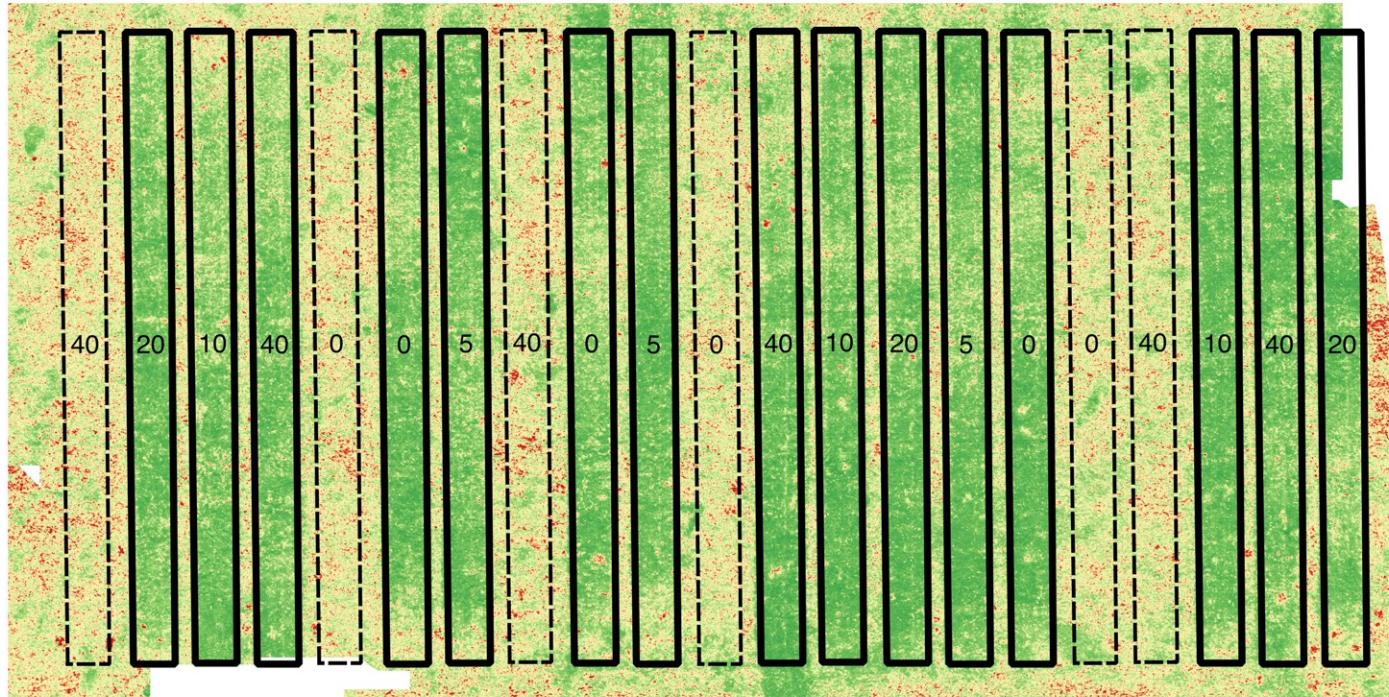
Dairy farmers
Beef farmers

Innovation – drones and sensors



near infrared and x-ray fluorescence

Pasture growth – NDVI images treatments and P rates (kg/ha)



- No basals
- Basals applied

Successful trials

Wrong message to farmers

Basal fertiliser (N,K,S, trace nutrients)

Working together!



- Building relationships, trust and capacity.
- Exploring problems together to formulate solutions and actions.
- Improve communication and extension

Partners and supporters



Department of Water and Environmental Regulation

Department of Primary Industries and Regional Development

