

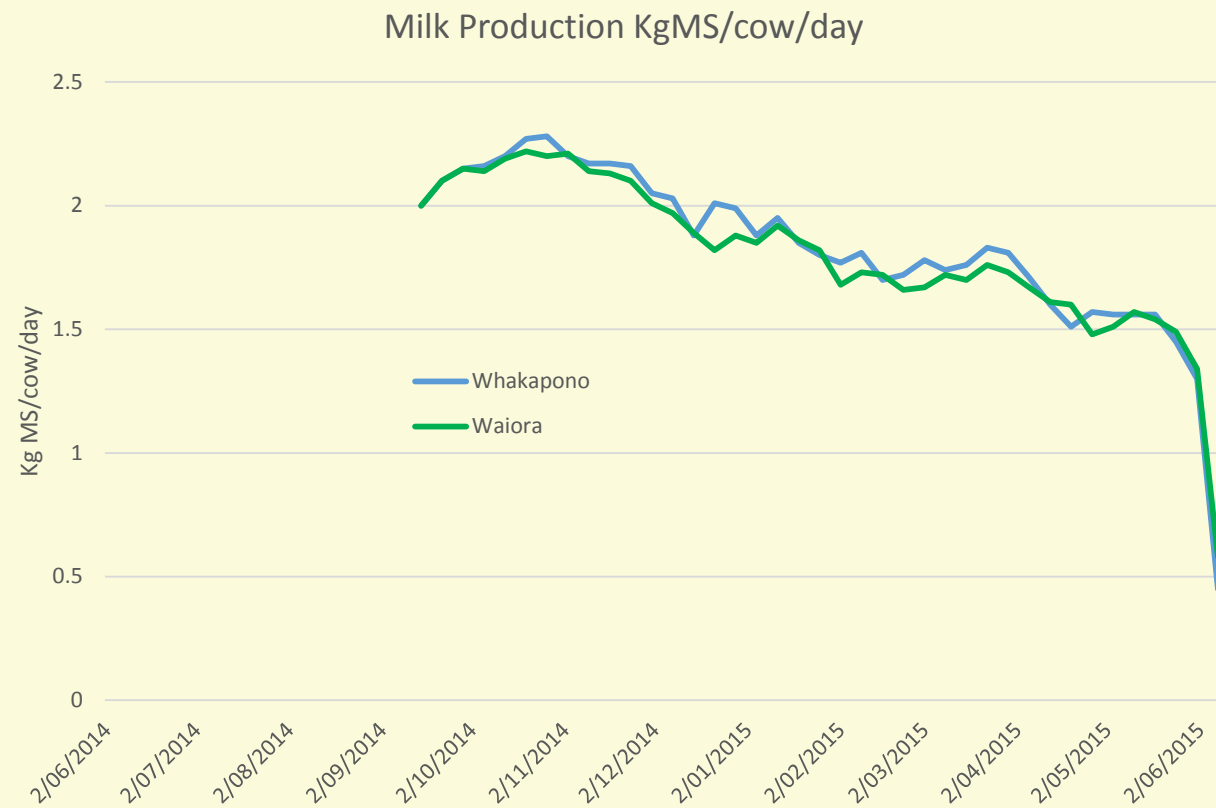
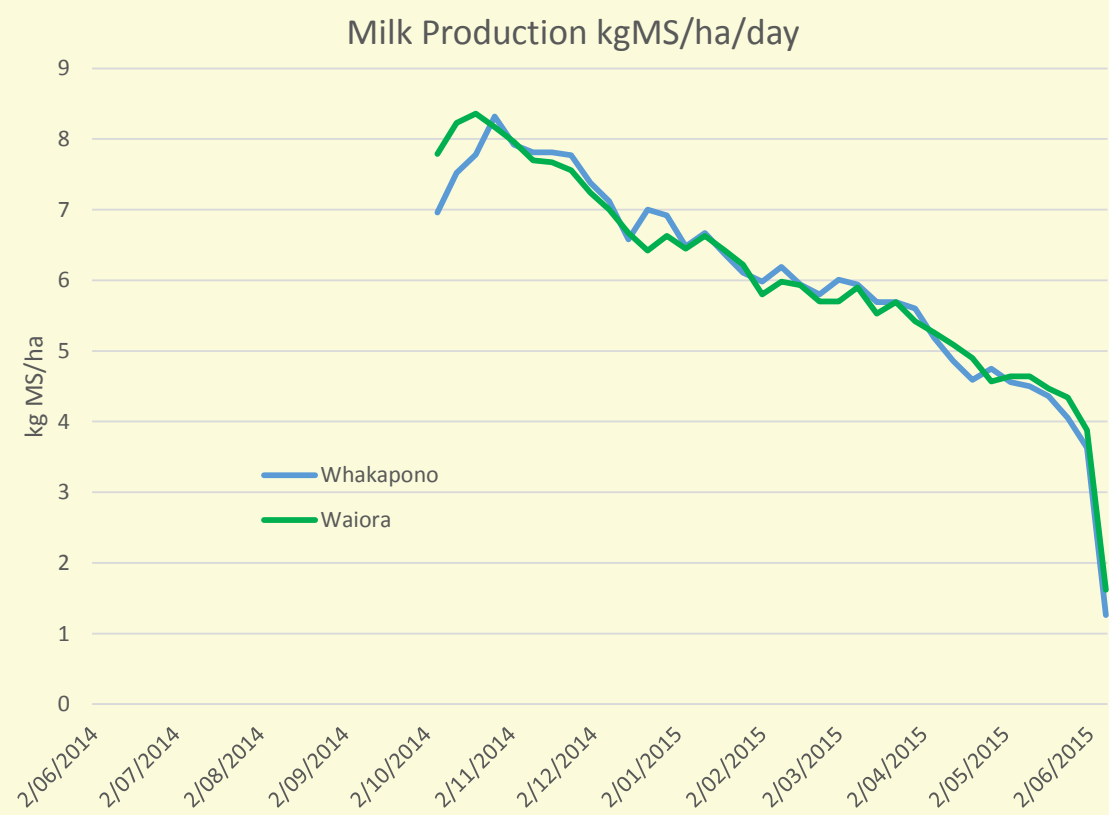
Waiora
Total Area 221.00ha

Whakapono
Total Area 164.56ha

| | Waiora | Whakapono |
|----------------|--------------|------------|
| Effective Area | 210 | 155 |
| Stocking Rate | 3.6 | 3.6 |
| Peak Cows | 748 | 552 |
| Treatment | Conventional | Biological |

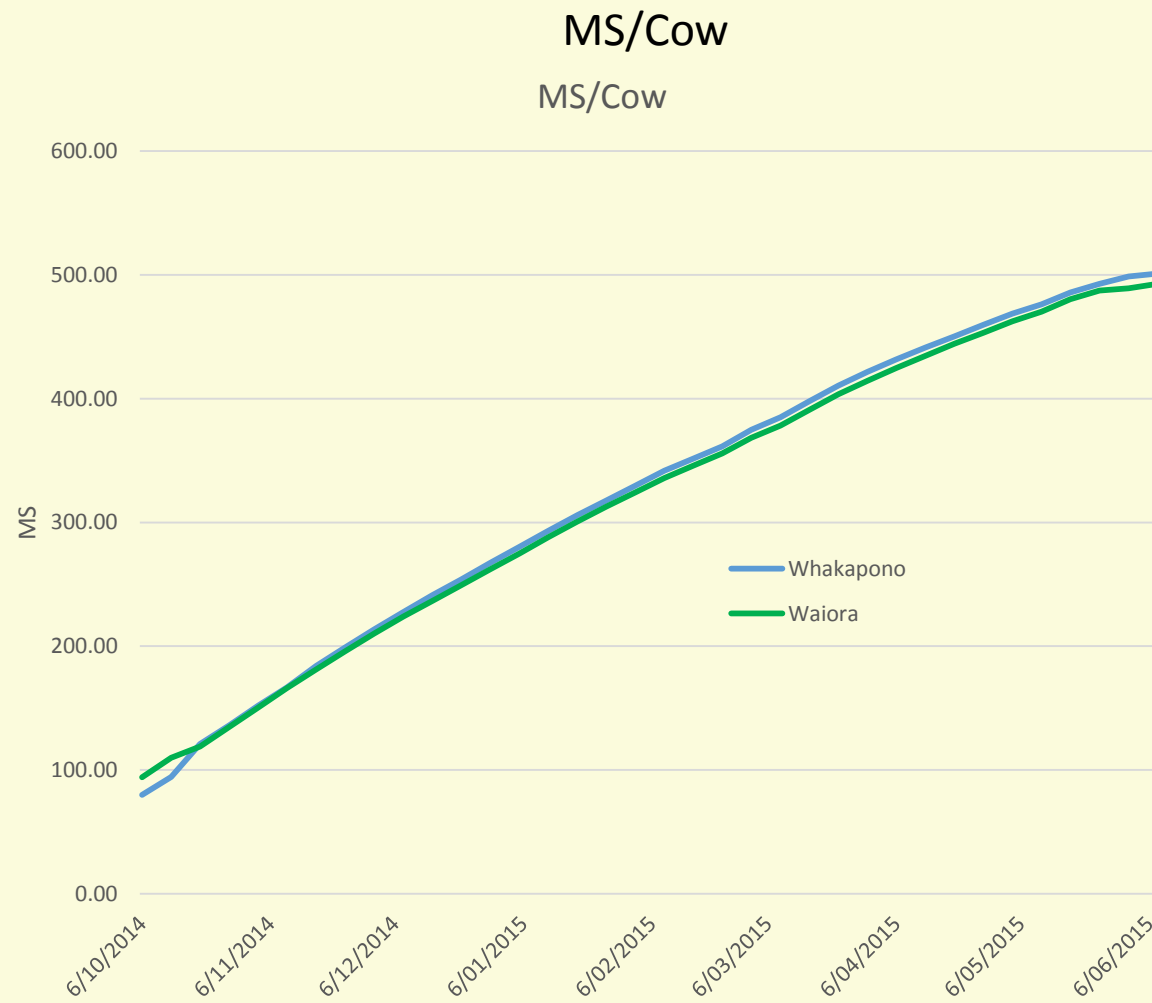
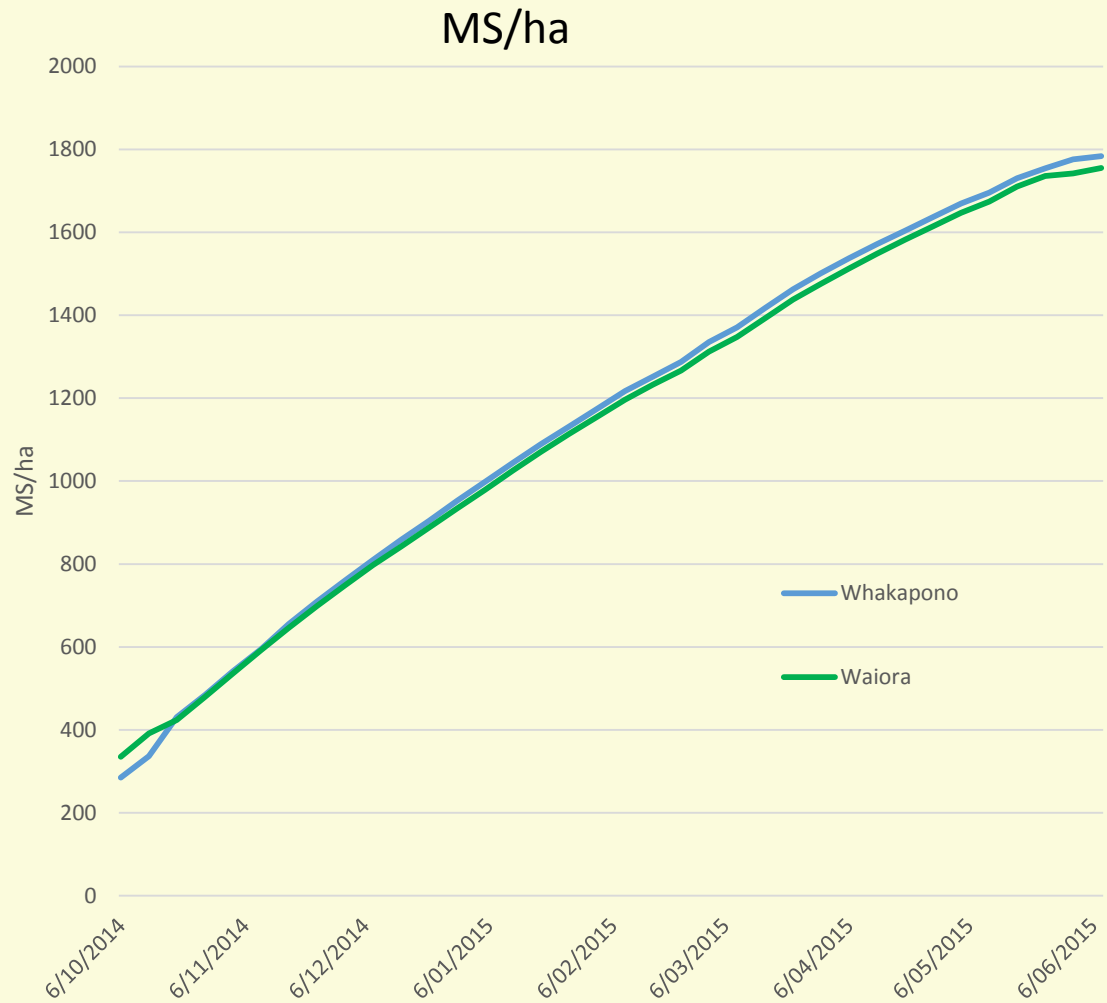


Milk Production 2014/2015



Soil nutrient management in dairy farming systems

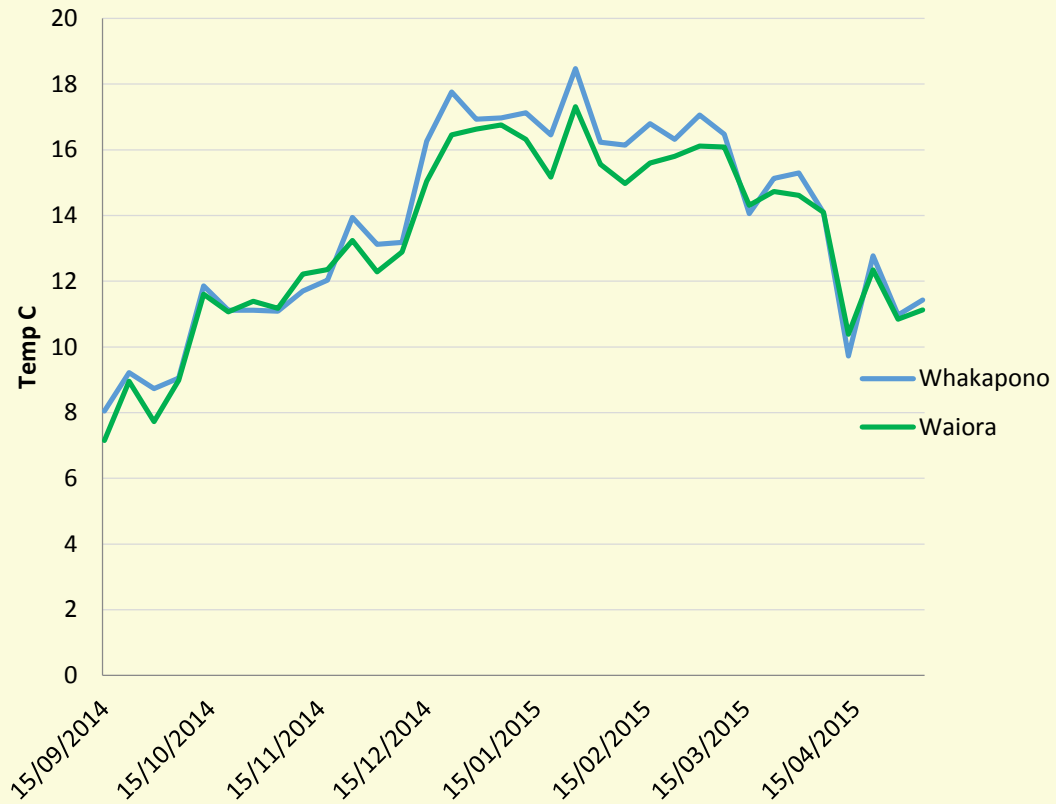
Milk Production



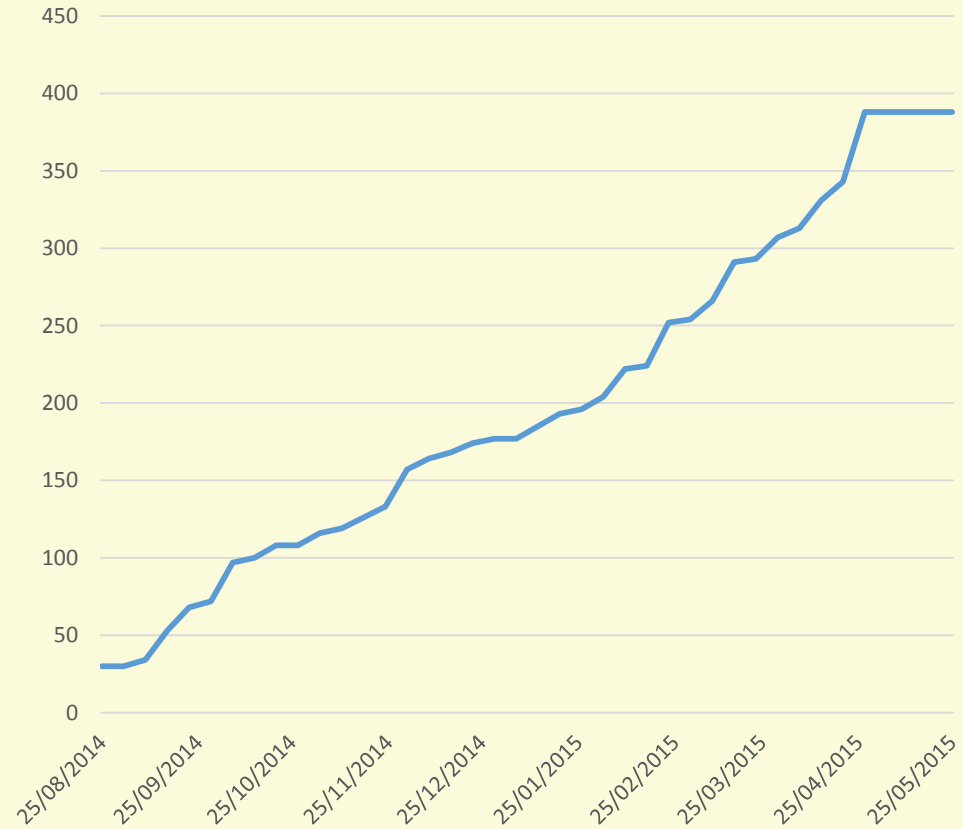
Soil nutrient management in dairy farming systems

Pasture Growing Conditions

Average Soil Temperature at 9am

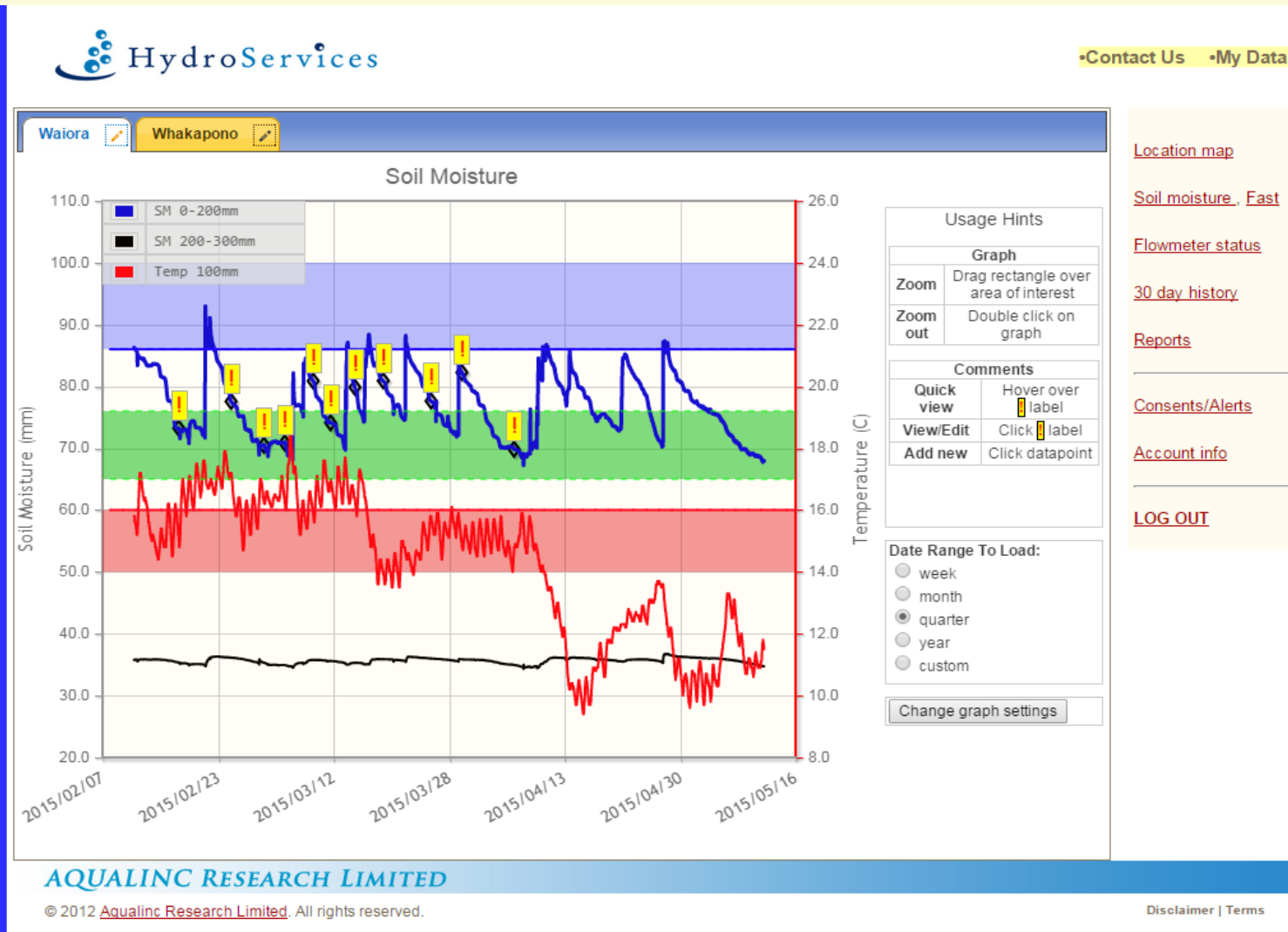


Rainfall to Date



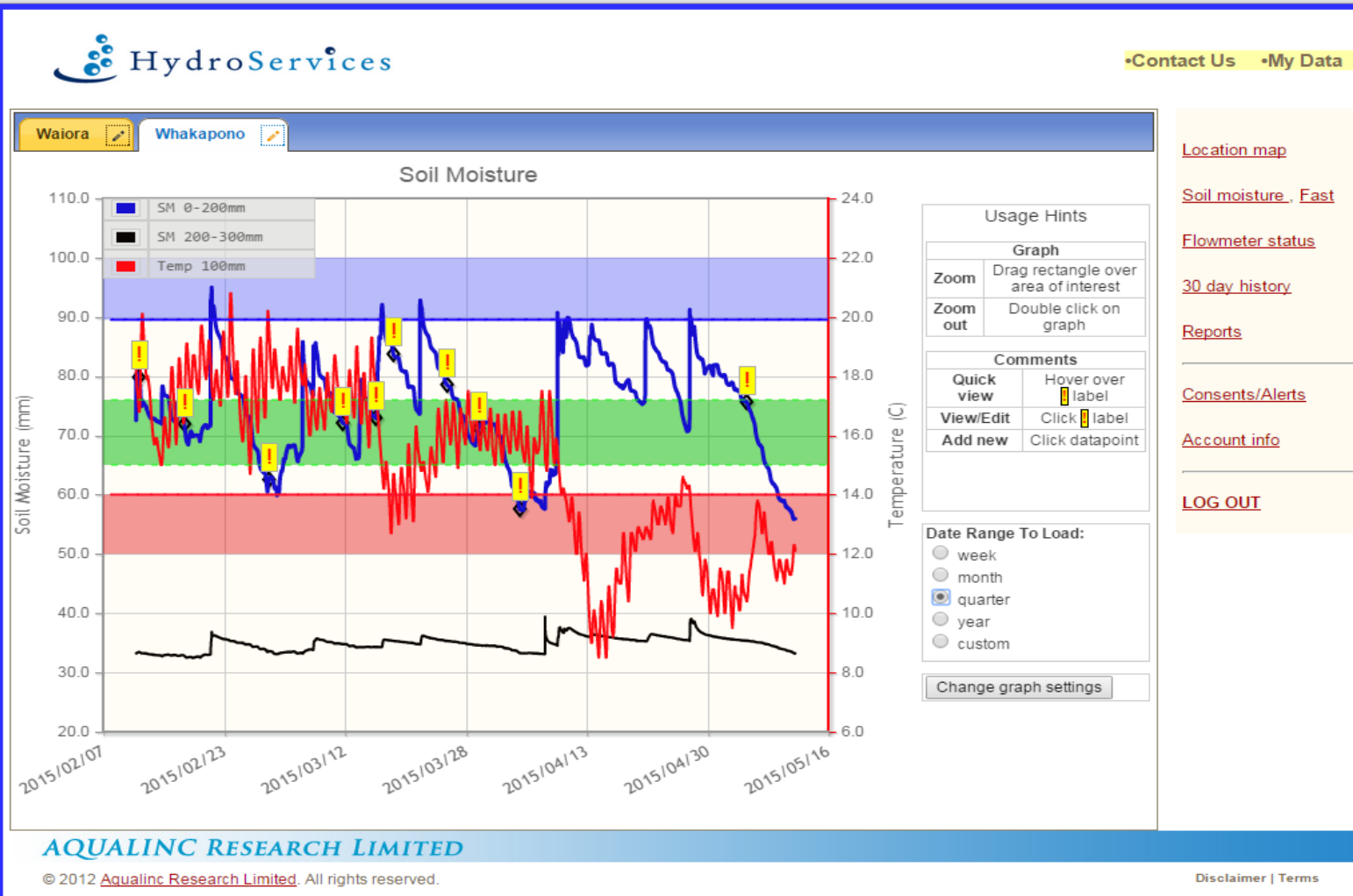
Soil nutrient management in dairy farming systems

Waiora Soil Moisture – last quarter



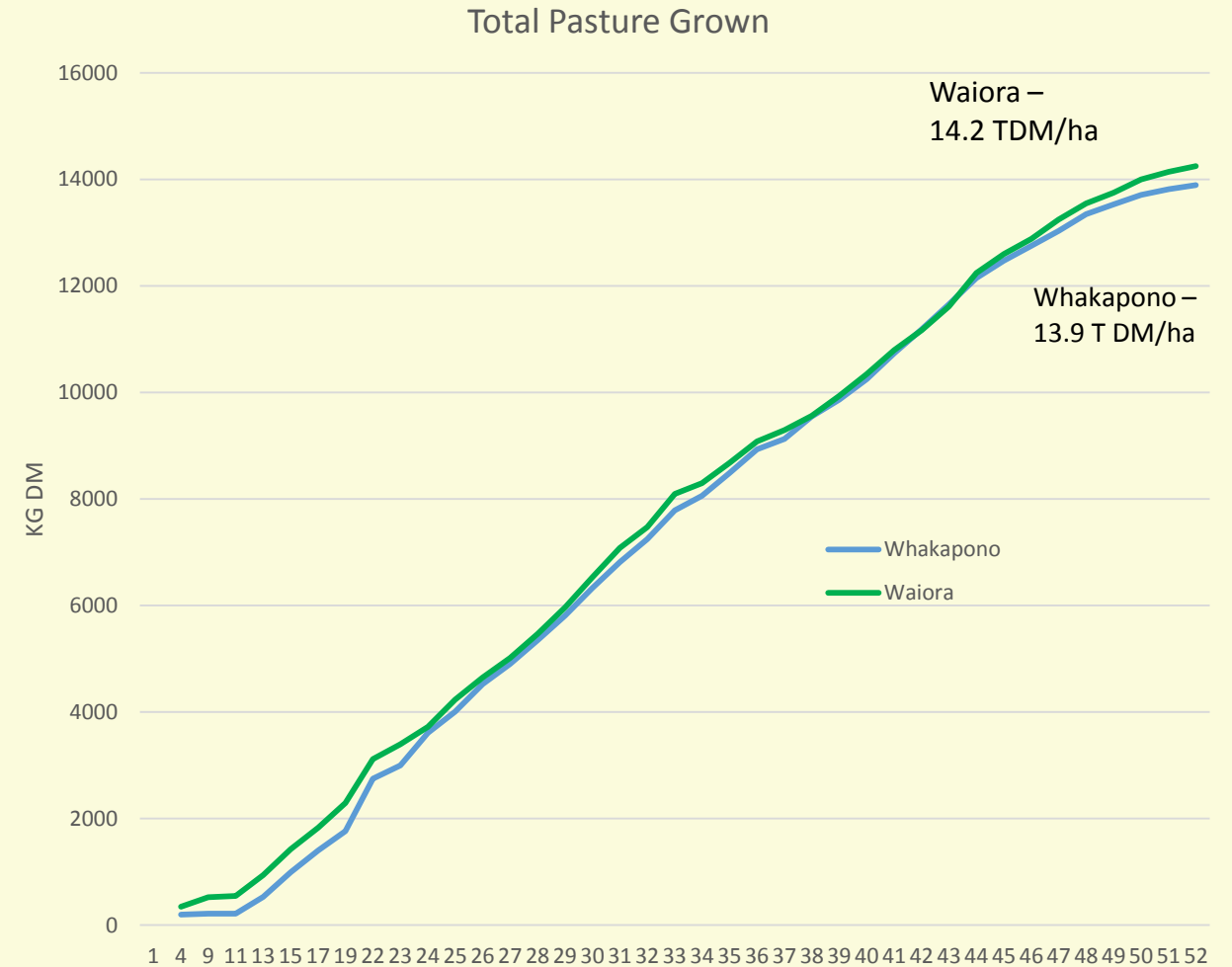
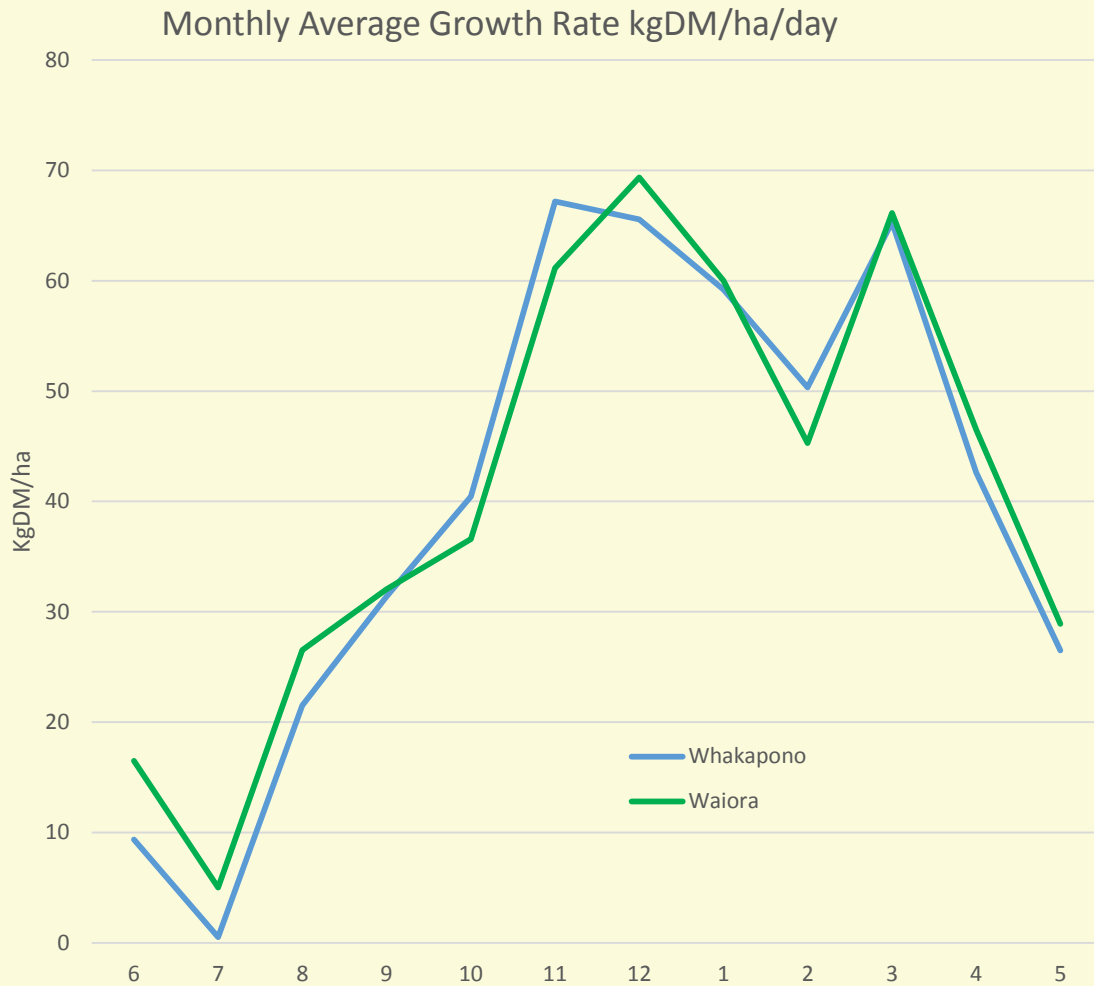
Soil nutrient management in dairy farming systems

Whakapono Soil Moisture – last quarter

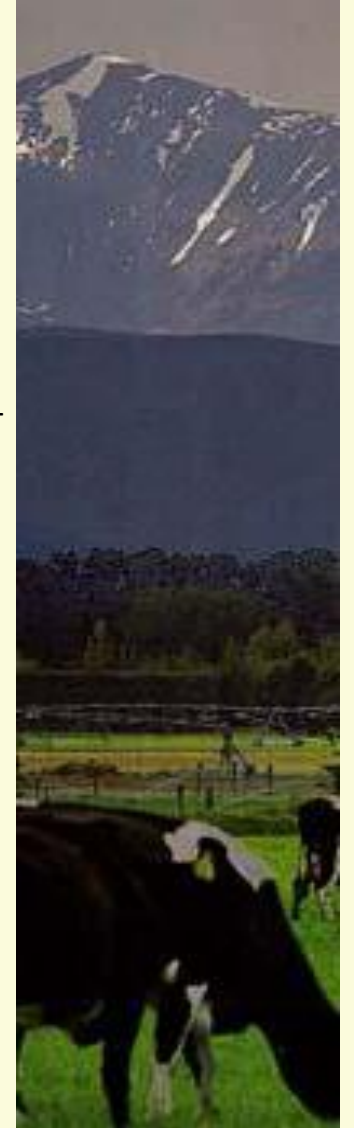
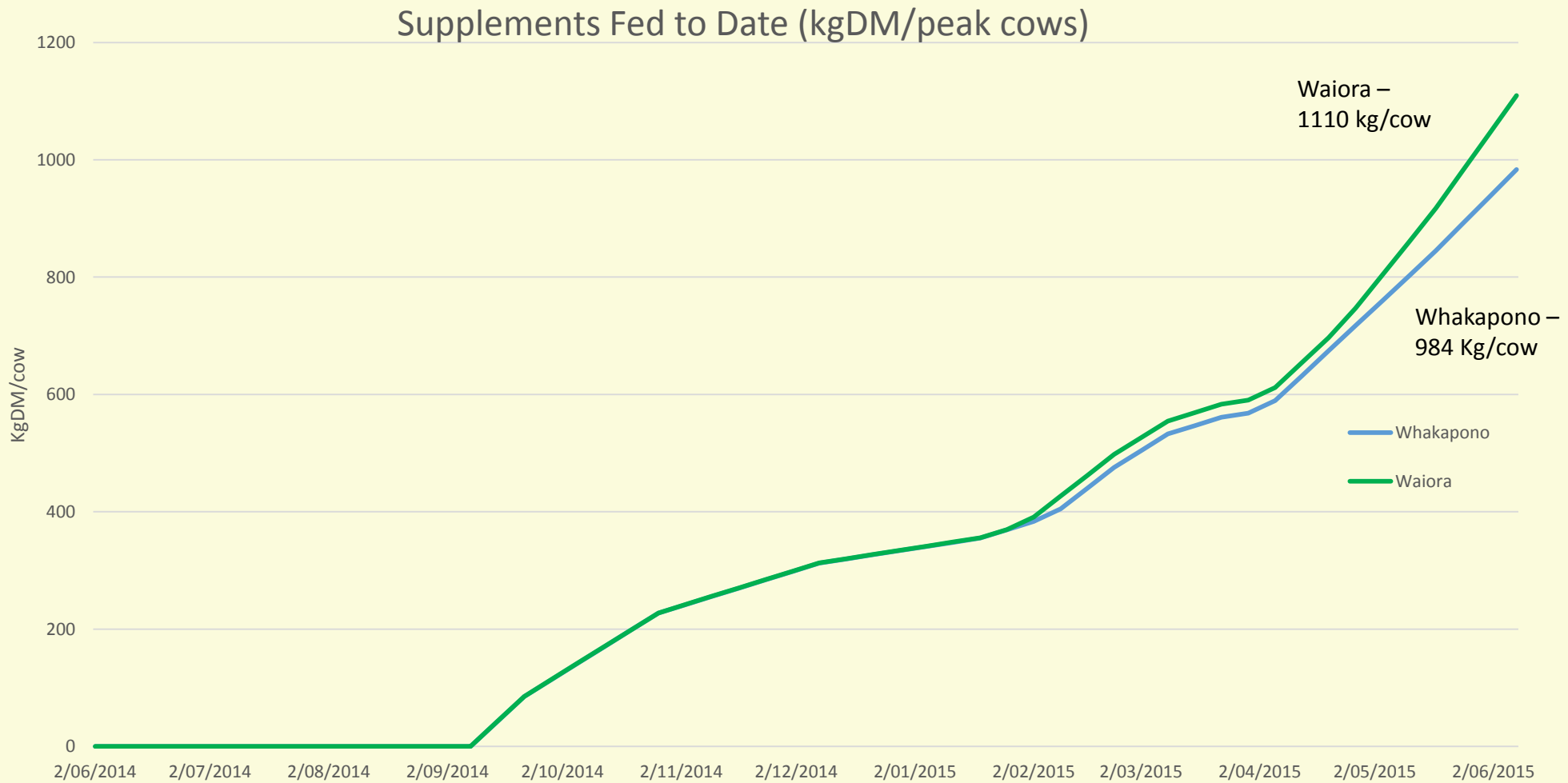


Soil nutrient management in dairy farming systems

Pasture Growth

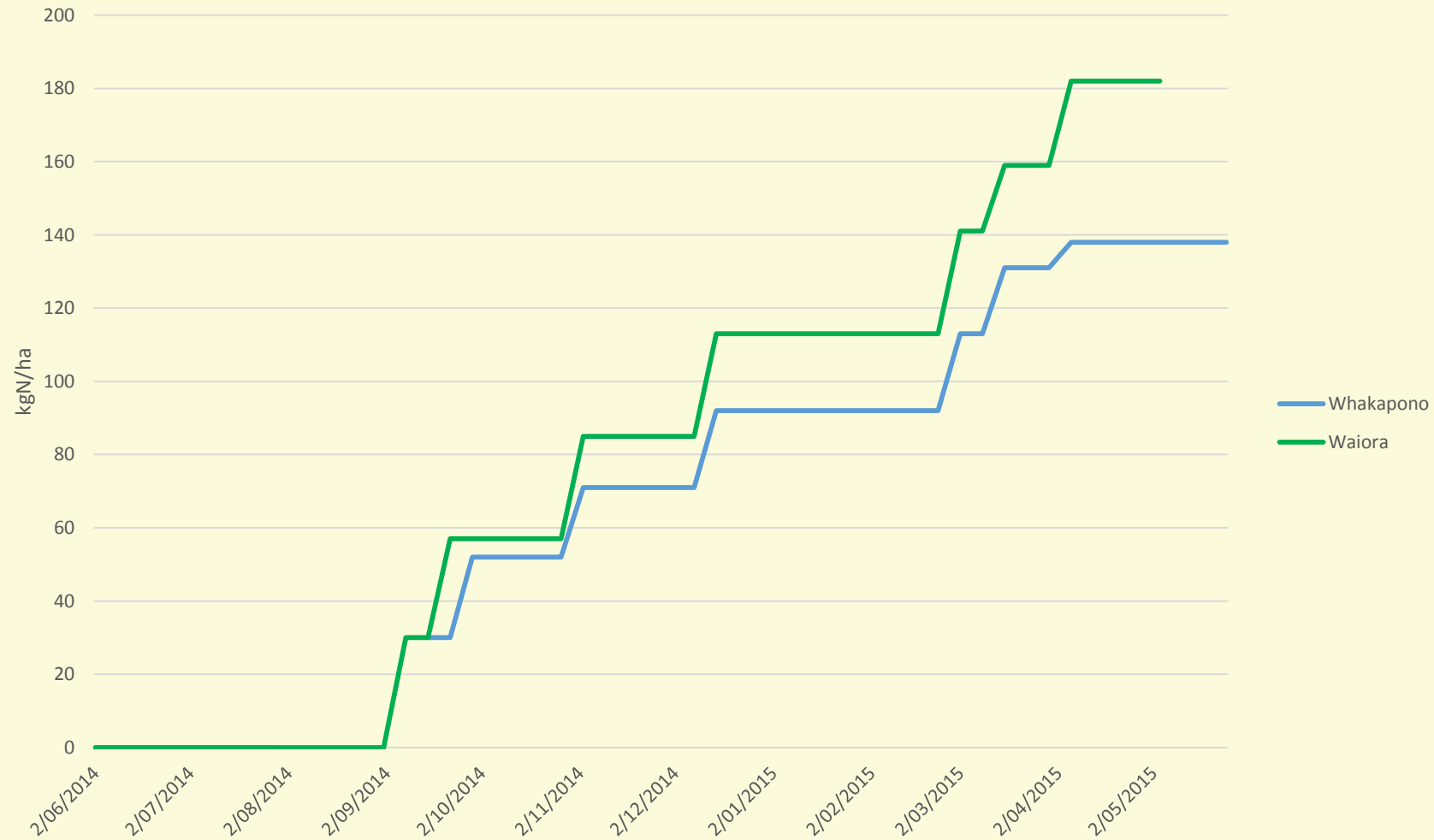


Soil nutrient management in dairy farming systems

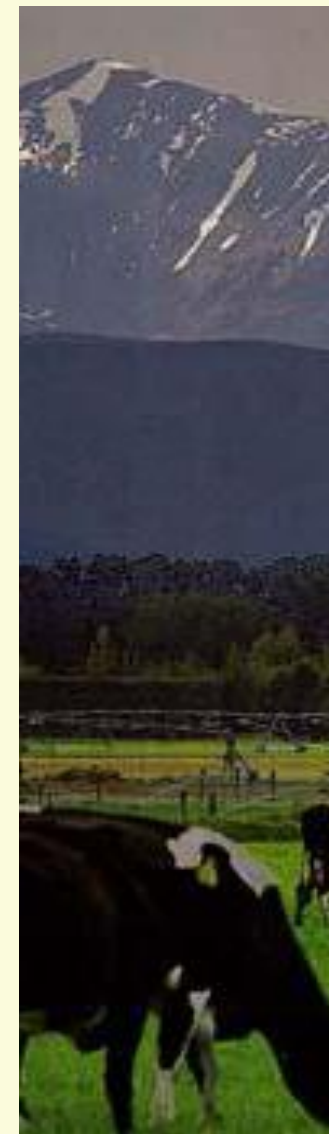
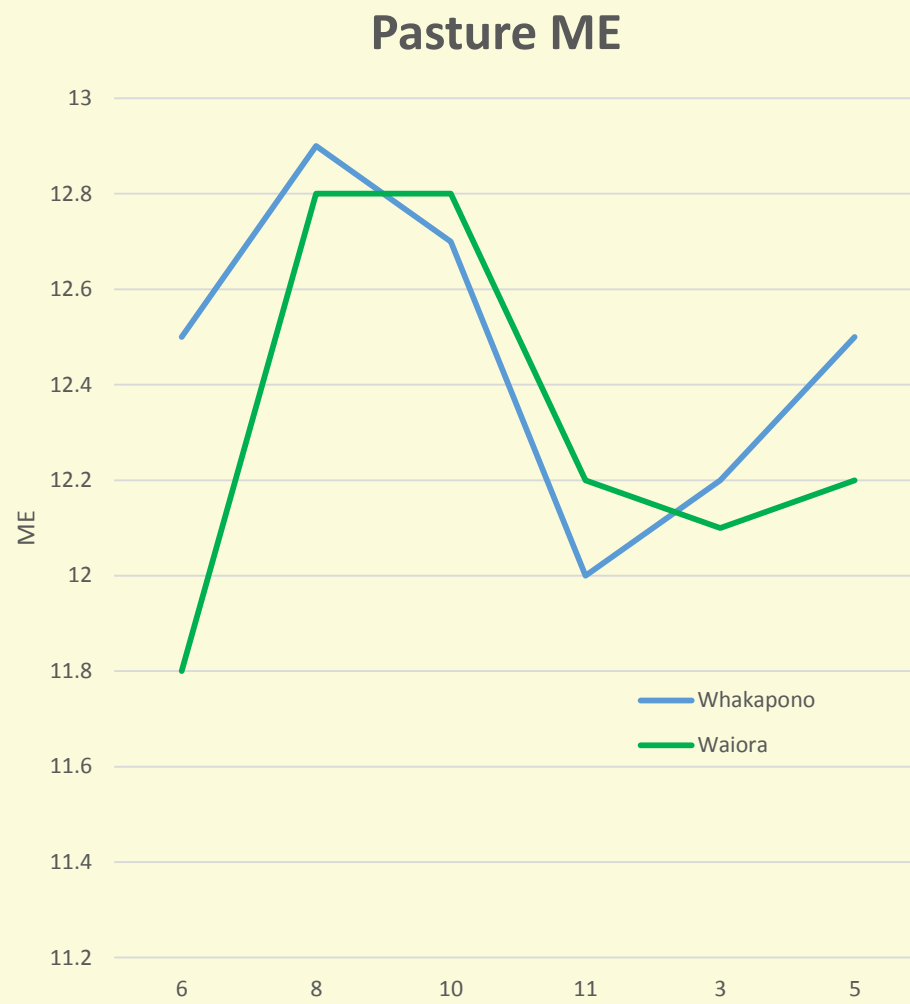
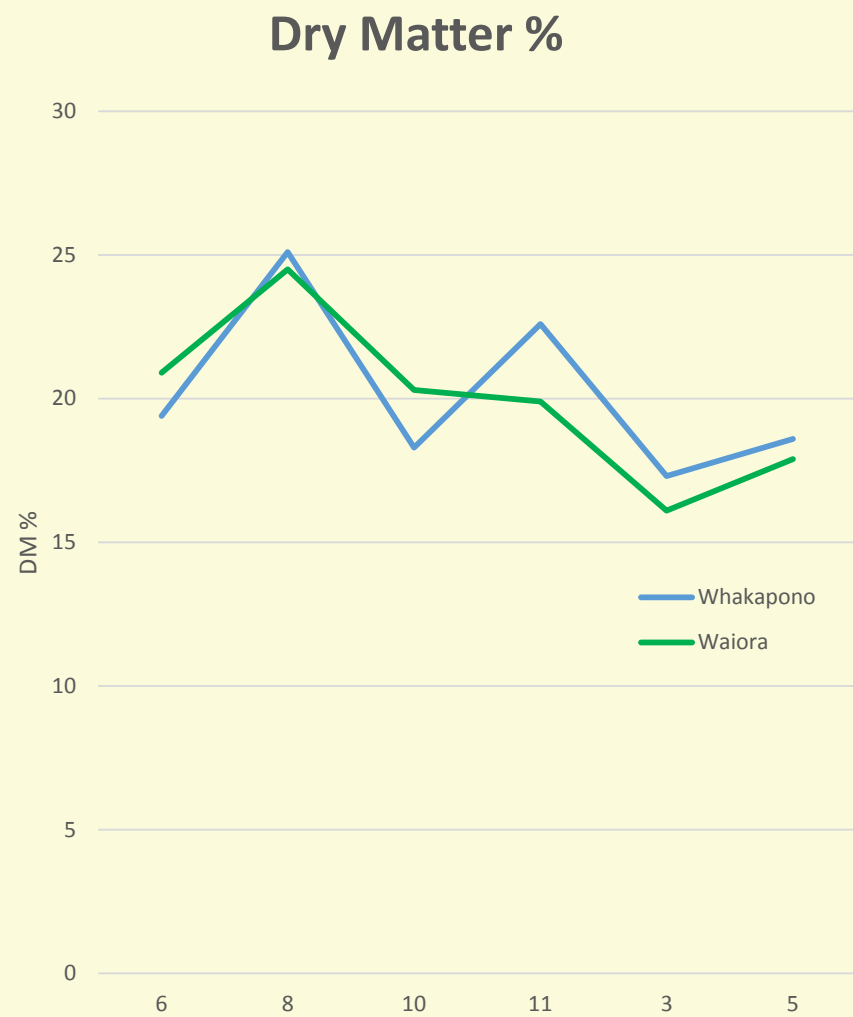


Soil nutrient management in dairy farming systems

Cumulative N Fertiliser Use

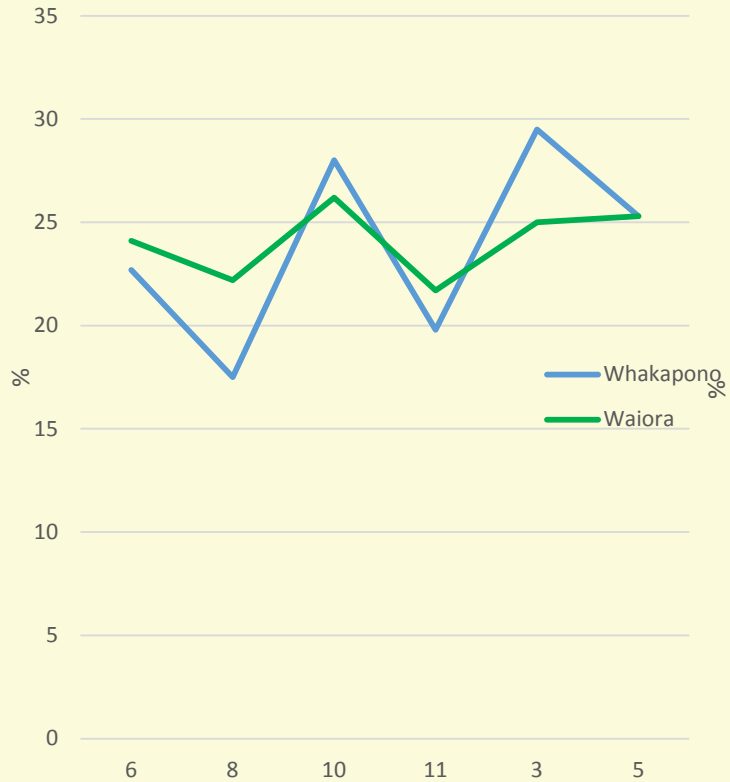


Soil nutrient management in dairy farming systems

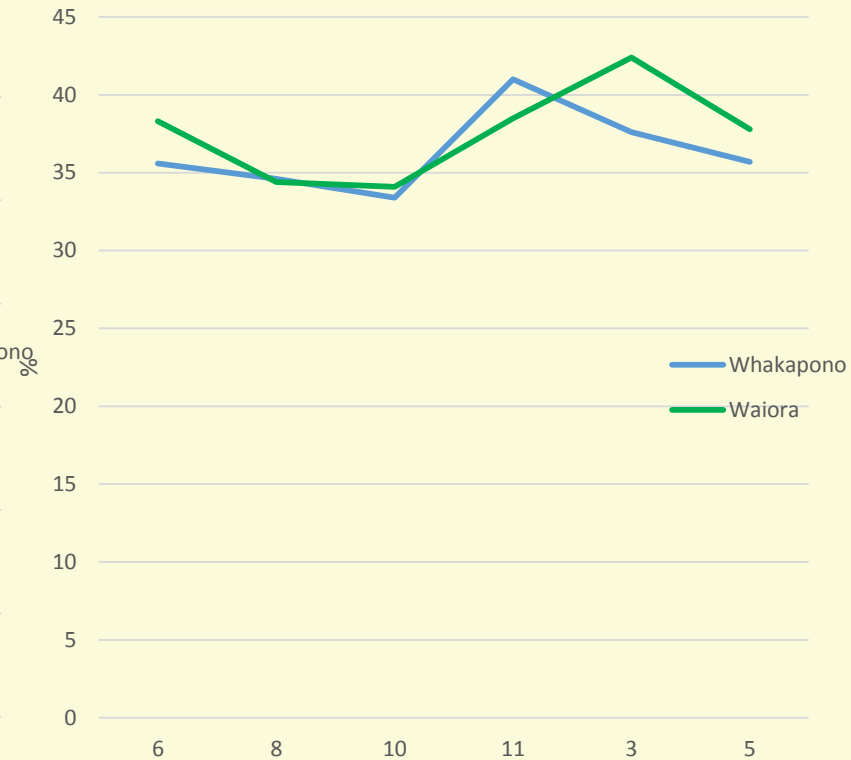


Soil nutrient management in dairy farming systems

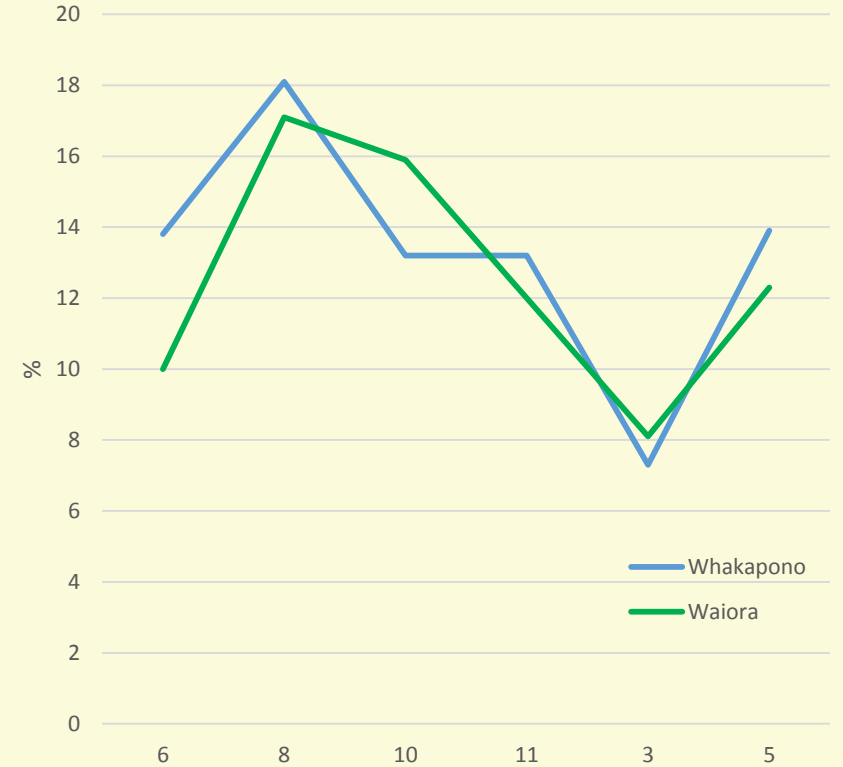
Protein %



NDF %



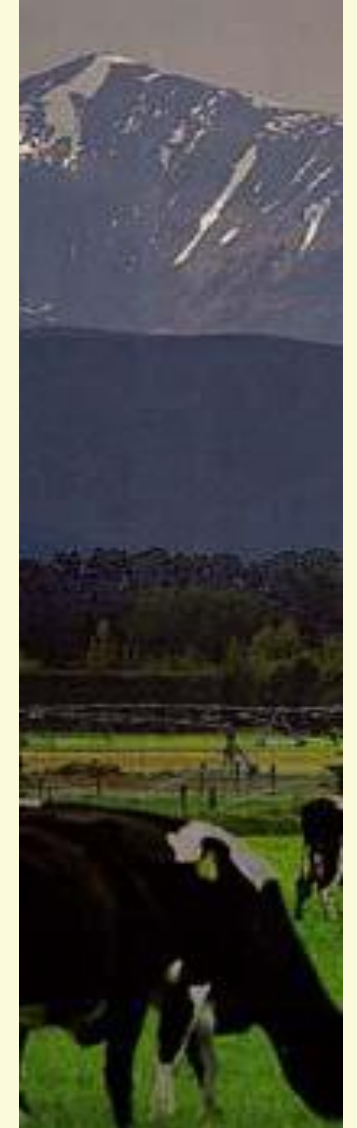
Soluble Sugars %



Soil nutrient management in dairy farming systems

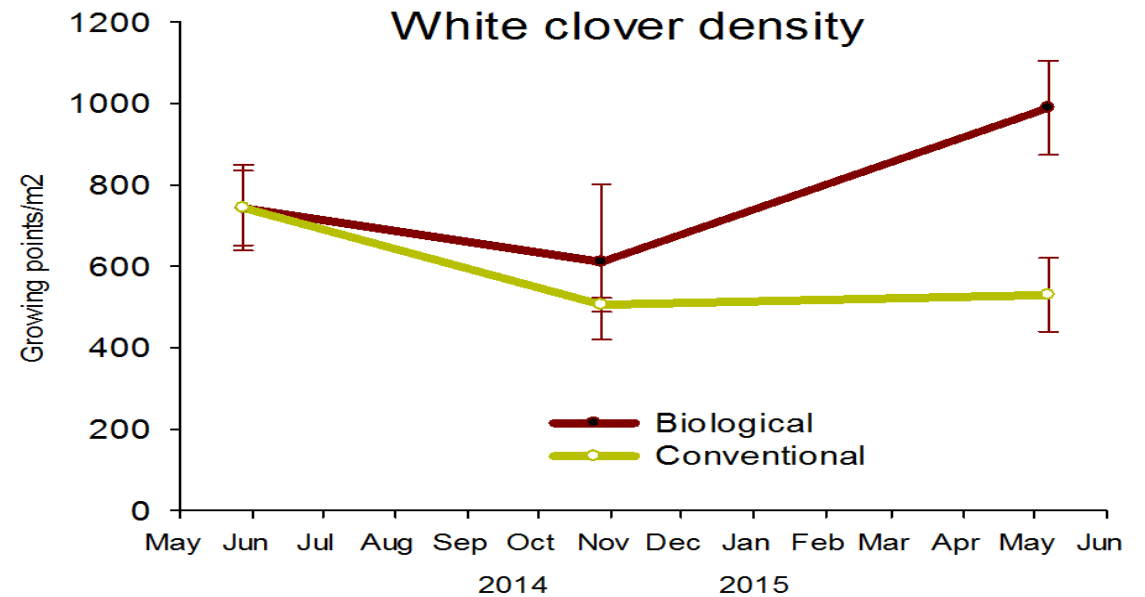
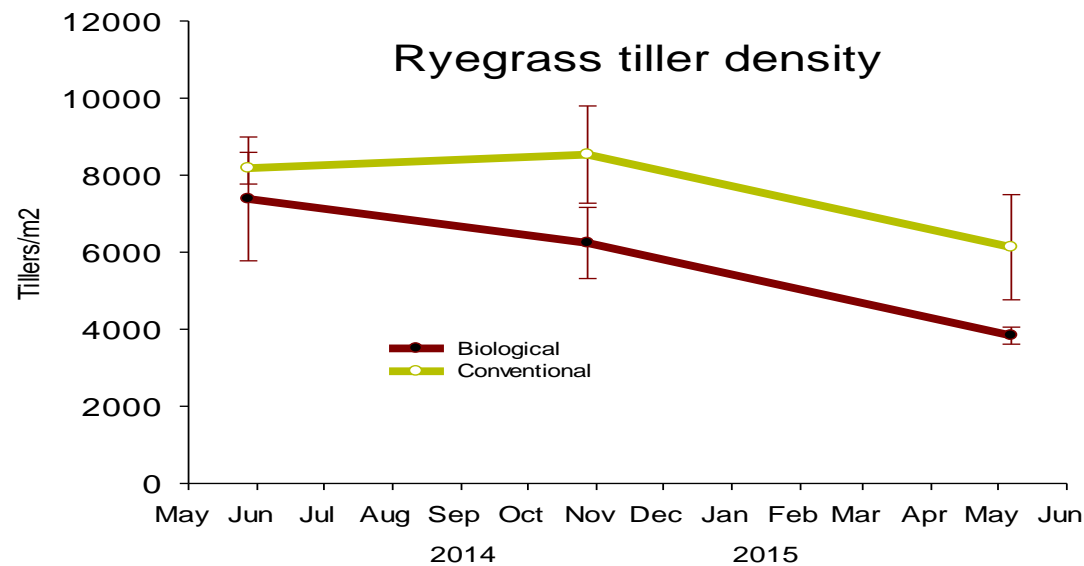
Average Pasture Quality for Season

| Ave for Season | Whakapono | Waiora |
|------------------|-----------|--------|
| DM % | 20.2 | 19.9 |
| ME % | 12.5 | 12.3 |
| Protein % | 23.8 | 24.1 |
| NDF % | 36.3 | 37.6 |
| Soluble Sugars % | 13.3 | 12.6 |

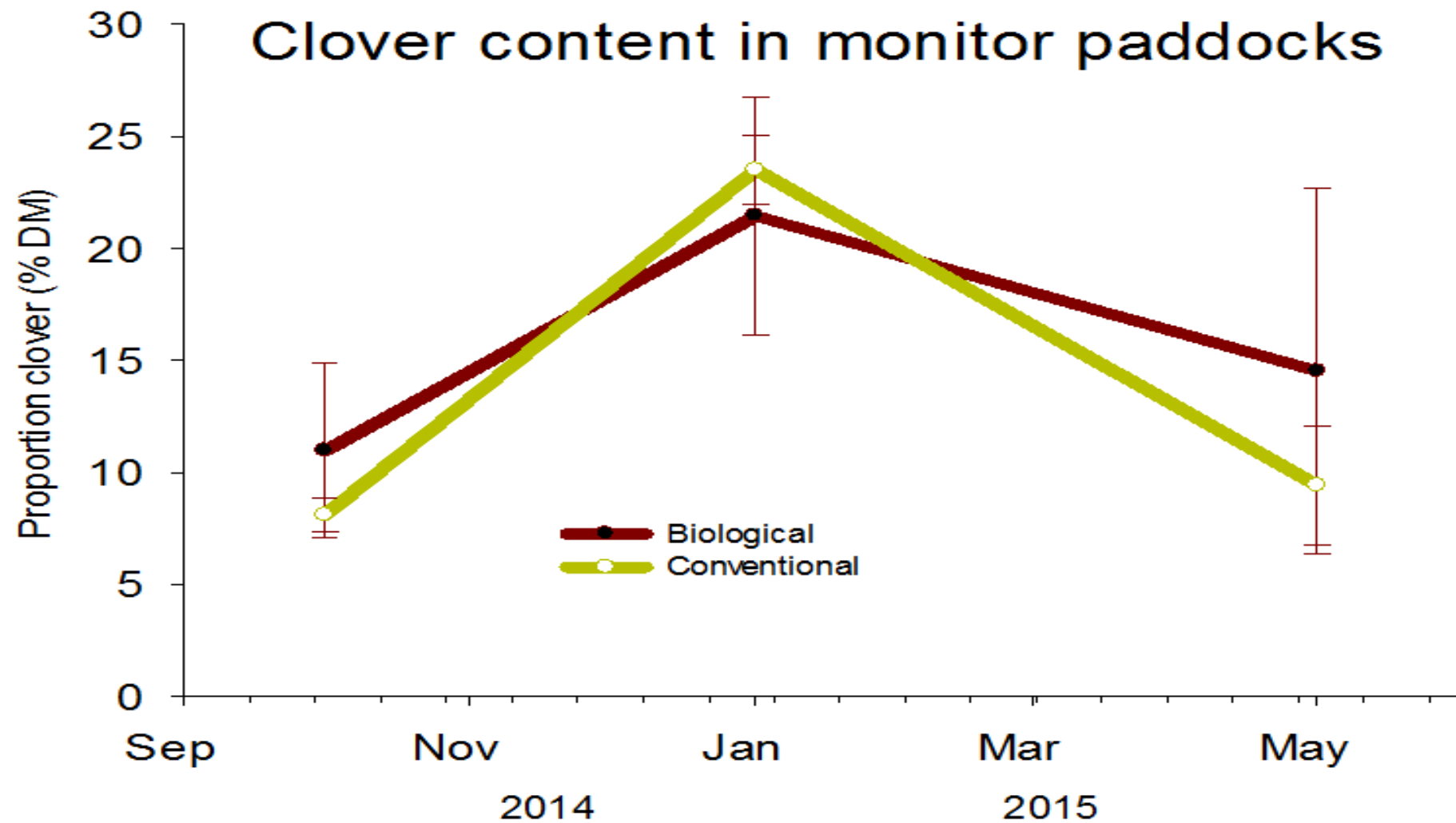


Soil nutrient management in dairy farming systems

Effect of farm fertiliser system on tiller and clover density in monitor paddocks



Measurements courtesy of Lincoln University



Measurements courtesy of Plant and Food

Pasture Comparison

Whakapono

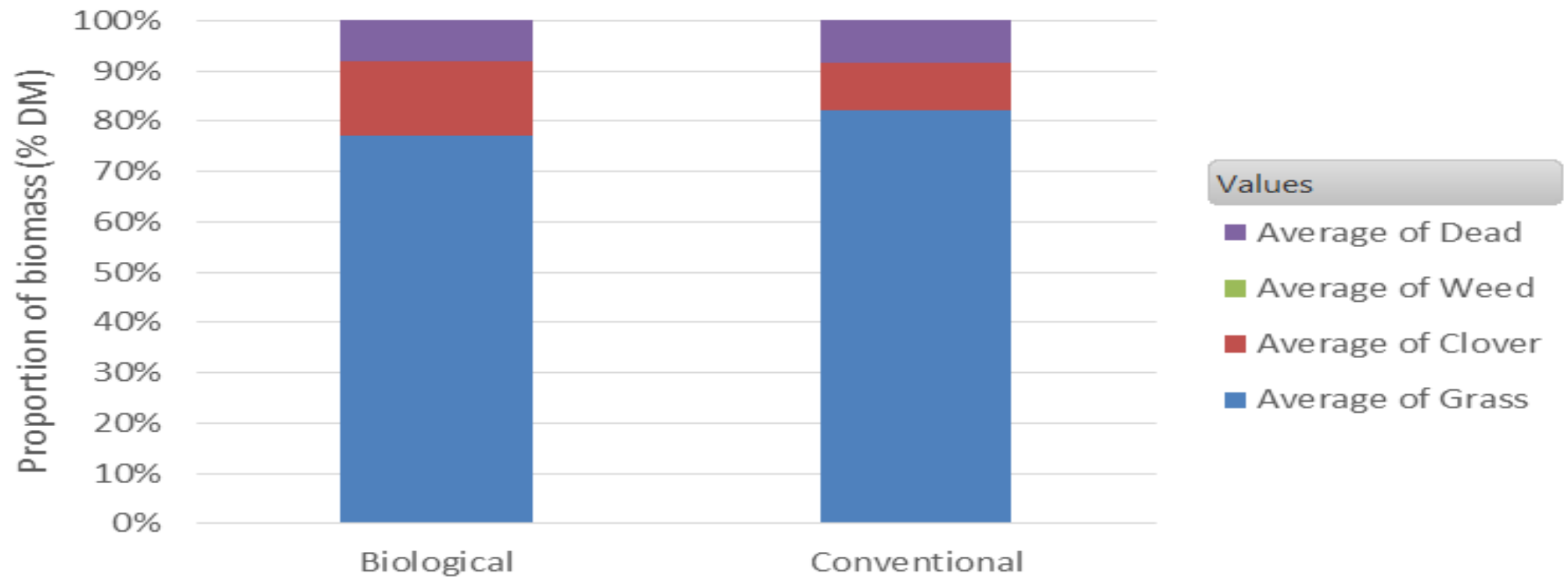


Waiora



Pre graze pasture ready May 2015 on a 48 day round

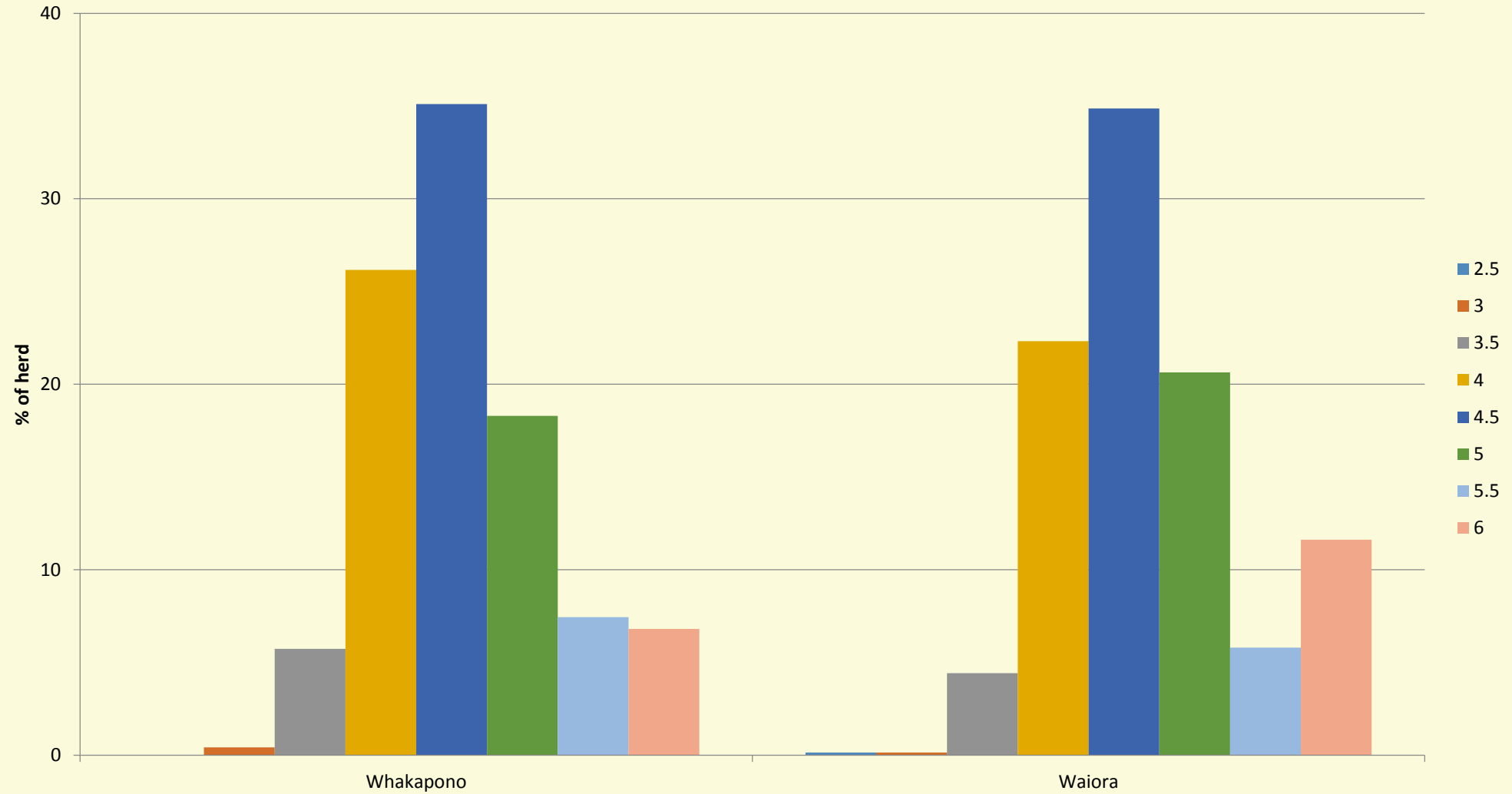
Current situation for botanical composition of monitor paddocks



Measurements courtesy of Plant and Food

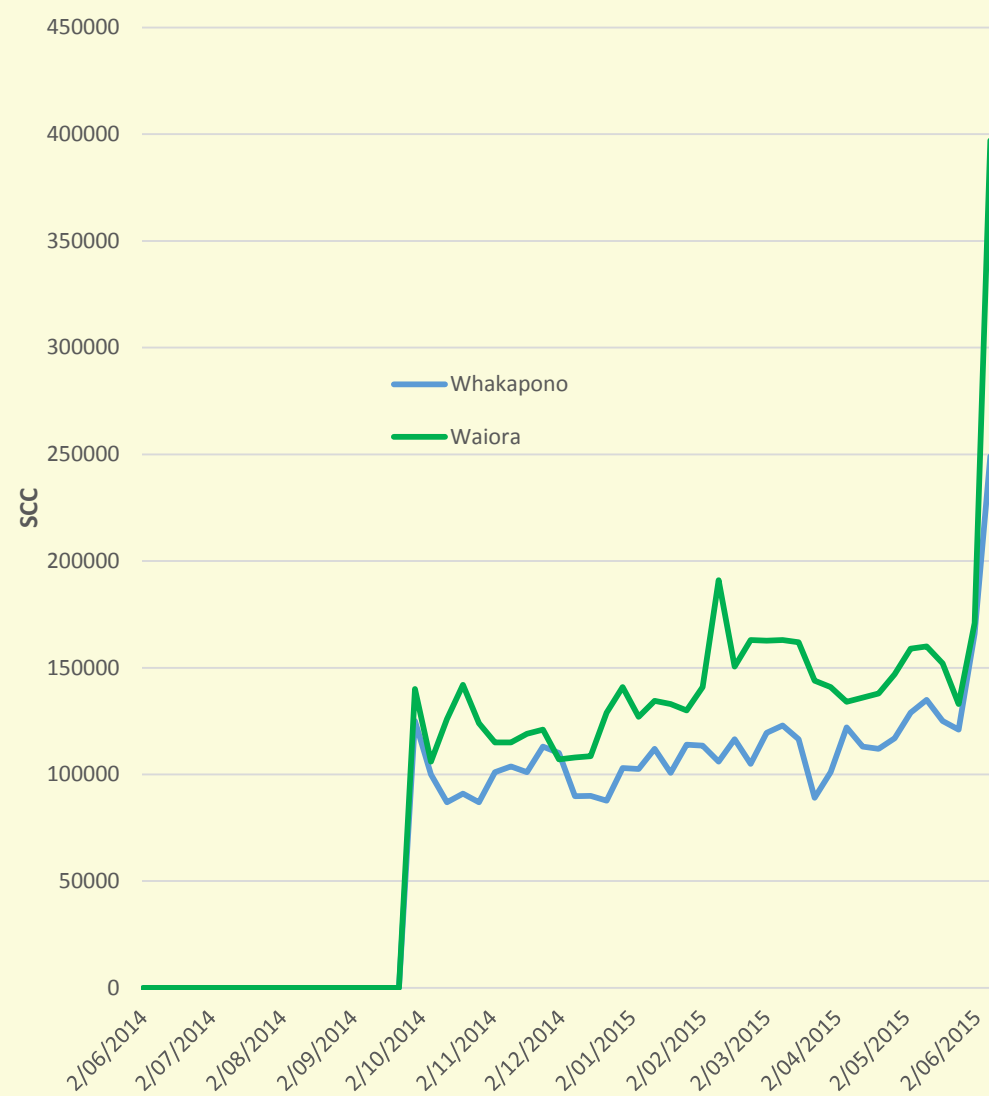


Cow Condition for April 2015

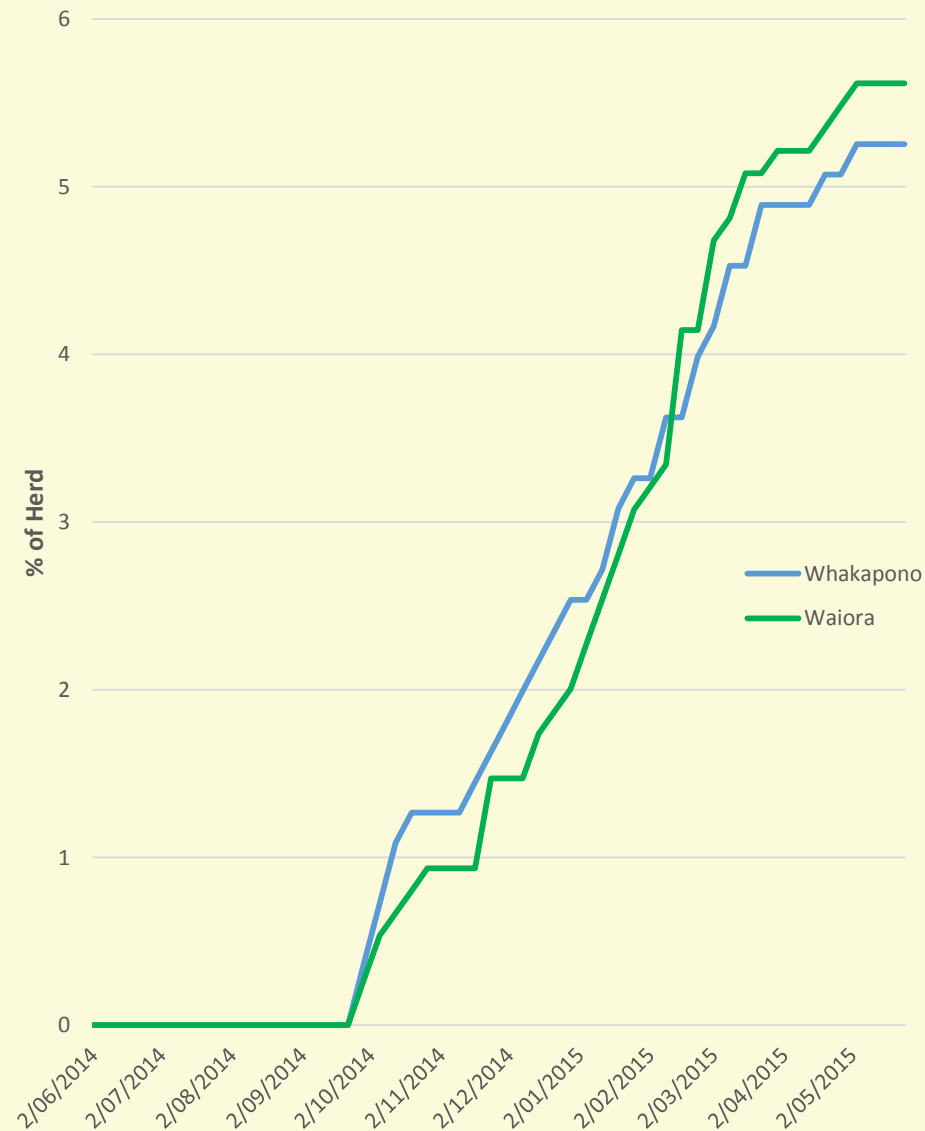


Soil nutrient management in dairy farming systems

Bulk Milk SCC

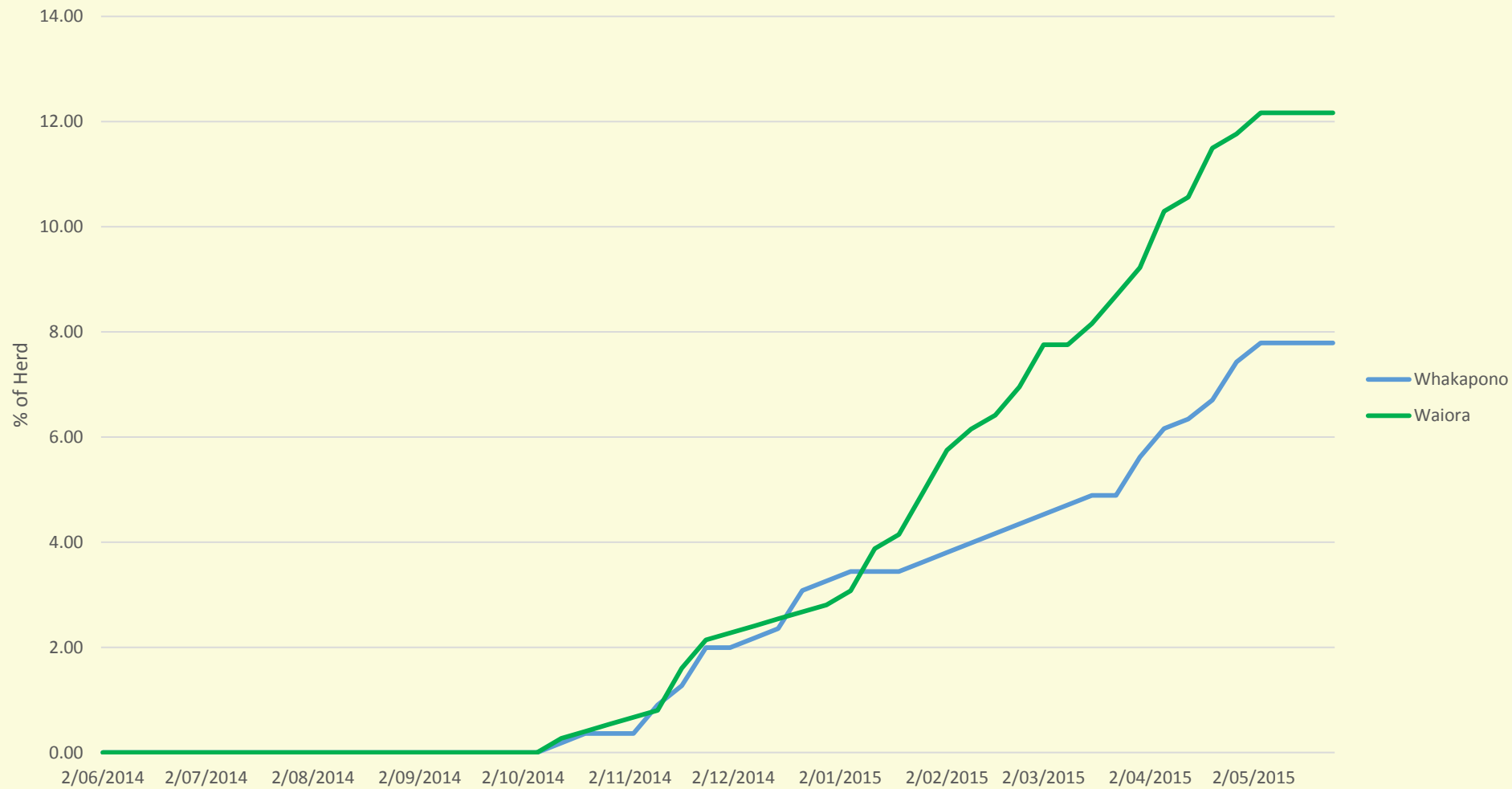


Cumulative Mastitis Cases



Soil nutrient management in dairy farming systems

Cumulative Lane Cases



Soil nutrient management in dairy farming systems

Reproductive Performance

| | Whakapono | Waiora |
|-----------------|-----------|--------|
| Submission Rate | 92 | 89 |
| 6 week ICR | 75 | 71 |
| Conception Rate | 7.7 | 10 |



Soil nutrient management in dairy farming systems



Fertiliser Recommendation

(v 1.32)

Prepared for (customer): Back Track Dairies (Cust No: 3094257)
 Property: Back Track Dairies Ltd (Prop No: 4069822)
 Recommendation: 2014/15 current prices Representative: Hannah Phillips
 Date: 11/05/2015 Phone:

Having considered all available data relevant to your property Ballance Agri-Nutrients recommends the following fertiliser to be applied.

Block: Whole farm effective

Area (Ha): 210

Usage:

| Application | Kg/Ha | Product | N | P | K | S | Mg | Ca | Na | % of Mix | Kg/T | \$/Tonne (Prod) | Total \$ (Prod) | Crt/Sprd (\$/T) | \$/Ha | Total \$ |
|--------------------|---------|--|--------------------|----|----|----|----|----|----|---|------|-----------------|-----------------|-----------------|----------|-------------|
| | | | (Kg nutrient / ha) | | | | | | | | | | | | | |
| Spring N (applied) | | Merchant: Cates Grain and Seed Ltd Store: Methven Consignment Store | | | | | | | | Delivery Date: Carrier: Philip Wareing Ltd - Methven Spreader: Philip Wareing Ltd - Methven | | | | | | |
| Tot App Rate/Ha: | 100.000 | Sustain Ammo 30N Total tonnes: 21.000 | 30 | 0 | 0 | 14 | 0 | 0 | 0 | 100 | | \$620.80 | \$13,036.80 | \$0.00 | \$62.08 | \$13,036.80 |
| Spring maintenance | | Merchant: Cates Grain and Seed Ltd Store: Methven Consignment Store | | | | | | | | Delivery Date: Carrier: Philip Wareing Ltd - Methven Spreader: Philip Wareing Ltd - Methven | | | | | | |
| Tot App Rate/Ha: | 400.000 | Superten 15K Total tonnes: 84.000 | 0 | 25 | 60 | 30 | 0 | 62 | 0 | 100 | | \$447.50 | \$37,590.00 | \$0.00 | \$179.00 | \$37,590.00 |
| Autumn maintenance | | Merchant: Cates Grain and Seed Ltd Store: Methven Consignment Store | | | | | | | | Delivery Date: Carrier: Philip Wareing Ltd - Methven Spreader: Philip Wareing Ltd - Methven | | | | | | |
| | 220.000 | Serpentine Super | | | | | | | | 88 | | | | | | |
| | 30.000 | Calmag - Granulated | | | | | | | | 12 | | | | | | |
| | 1.000 | Selenium | | | | | | | | 3.98 | | | | | | |
| Tot App Rate/Ha: | 251.000 | Total tonnes: 52.710 | 0 | 15 | 0 | 18 | 22 | 37 | 0 | 100 | | \$378.10 | \$19,929.65 | \$0.00 | \$94.90 | \$19,929.65 |
| Block Analysis: | | | 30 | 40 | 60 | 62 | 22 | 99 | 0 | 157.710 tonnes | | \$70,556.35 | | | | |
| Maintenance: | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | |

Recommendation Totals:

157.71 tonnes

\$70,556.35

\$70,556.45

This is a fertiliser recommendation, not a quote. The prices shown are indicative only, and are exclusive of GST. On acceptance of a recommendation a sales order confirmation will be issued; this will show pricing on the day of issue. Fertiliser prices are subject to change; customers will be invoiced based on prices ruling on day of delivery

Top Soils – Utilising the Kinsey-Albrecht System of Soil Fertility

| | | | | |
|--------------------------------|--------------|--------|---------------|-----------------|
| Whakapono | | | | |
| | | | | |
| Product | Total tonnes | Kgs/Ha | Kgs/Nutrients | Kgs Nutrient/ha |
| Lime =Calcium carbonate | 72.714 | 673 | 48936 | 312 |
| Dolomite = Calcium Carbonate | 34.532 | 219 | 17266 | 109 |
| Dolomite =Magnesium Carbonate | | 219 | 8633 | 54 |
| Guano = Dicalcic Phosphate | 21.6 | 137 | 1822 | 16.12 |
| Sulphur = Elemental | 7.09 | 45 | 6381 | 40.5 |
| Kieserite = Magnesium Sulphate | 3.939 | 25 | 624 | 4 |
| SOP = Potassium Sulphate | 24.591 | 156 | 12541 | 79 |
| Sulphate of Ammonia | 89059 | 657 | 17989 | 114 |
| Urea | 2552 | 16.25 | 1174 | 7.47 |
| Liquid N | | | | 18 |
| Boron | 1961 | 12.49 | | |
| Zinc | 4709 | 29.99 | | |
| Copper | 457 | 2.9 | | |
| Cobalt | 46 | 0.3 | | |
| | | | | |
| Fertiliser Cost | | \$ /HA | | |
| Spring 2014 | \$54,492 | \$347 | | |
| Nitrogen | \$36,685 | \$234 | | |
| Autumn 2015 | \$33,301 | \$212 | | |
| Totals | \$124,478 | \$793 | | |
| GST | \$18,671.70 | | | |
| | \$143,149.70 | | | |

| | Kinsey-Albrecht Soil Test | | | Hills Lab Test | | |
|------------------------------|---------------------------|--------|------------|----------------|---------------|------------|
| | Whakapono | Waiora | Difference | Whakapono | Waiora | Difference |
| Total exchange capacity TEC | 10.49 | 10.34 | 1.50% | CEC 15.07 | CEC 14.92 | 1.50% |
| PH | 6.01 | 6.09 | 1.25% | 6.17 | 6.2 | 0.50% |
| Humus content % | 3.16 | 3.02 | 4.75% | | | |
| Base Saturation % | | | | | | |
| Calcium, BS % (60 to 70 %) | 61.75 | 67.89 | 9.50% | 48 | 53 | 10.50% |
| Magnesium, BS % (10 to 15 %) | 12.71 | 7.63 | 67.50% | 8.02 | 4.3 | 90% |
| Potassium, BS % (2 to 5 %) | 3.78 | 3.11 | 22% | 2.59 | 2.11 | 23% |
| Sodium, BS % (.5 to 3 %) | 1.88 | 2 | 7.50% | 0.39 | 0.42 | 7.75% |
| Sulphate Sulphur p.p.m | 33.42 | 26 | 28% | 12.14mg/kg | 9.42mg/kg | 29% |
| Phosphate as P2O5 kg/ha | 705 | 662 | 7% | | | |
| Olsen Phosphorus | | | | 15.42 | 17.5 | 12.50% |
| Calcium, value found kg/ha | 3106 | 3152 | 1.50% | me/100g 7.14 | me/100g 7.95 | 11% |
| Magnesium, value found kg/ha | 371.57 | 212.35 | 75% | me/100 1.19 | me/100g 0.64 | 85% |
| Potassium, value found kg/ha | 358.92 | 273.92 | 31% | me/100g 0.38 | me/100 0.31 | 25% |
| Sodium,value found kg/ha | 101.46 | 106 | 4.50% | me/100g .06 | me/100g 0.062 | 4.50% |
| Boron, p.p.m | 1.43 | 0.95 | 50% | | | |
| Iron, p.p.m | 333 | 330 | 1% | | | |
| Manganese, p.p.m | 71 | 67 | 6% | | | |
| Copper, p.p.m | 2.81 | 1.25 | 125% | | | |
| Zinc, p.p.m | 10.15 | 4.7 | 115% | | | |

Soil nutrient management in dairy farming systems



Whakapono

Moderately good soil structure. VS = 1.5



Waiora

Moderately poor soil structure. VS = 0.5

Soil nutrient management in dairy farming systems

Overseer Nutrient Budgets

| Whakapono | (kg/ha/yr) | | | | | | |
|-----------------------------|------------|-----|-----|-----|-----|----|----|
| | N | P | K | S | Ca | Mg | Na |
| Nutrients Added | | | | | | | |
| Fertililser, lime and other | 138 | 17 | 75 | 185 | 269 | 25 | 0 |
| Rain/clover N Fixation | 137 | 0 | 2 | 4 | 2 | 4 | 20 |
| Irrigation | 8 | 0 | 5 | 8 | 29 | 7 | 29 |
| Supplements imported | 72 | 10 | 54 | 8 | 10 | 6 | 3 |
| | | | | | | | |
| Nutrients Removed | | | | | | | |
| As products | 125 | 22 | 28 | 8 | 31 | 2 | 8 |
| Exported effluent | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| As supplements | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| To atmospheric | 107 | 0 | 0 | 0 | 0 | 0 | 0 |
| To water | 35 | 0.8 | 13 | 190 | 49 | 3 | 7 |
| | | | | | | | |
| Change in internal pools | | | | | | | |
| Plant material | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Organic pool | 89 | 9 | 1 | 7 | 0 | 0 | 0 |
| Inorganic mineral | 0 | 2 | -13 | 0 | 71 | -2 | -3 |
| Inorganic soil pool | 0 | -7 | 107 | 0 | 158 | 38 | 40 |

| Waiora | (kg/ha/yr) | | | | | | |
|-----------------------------|------------|-----|-----|----|----|----|----|
| | N | P | K | S | Ca | Mg | Na |
| Nutrients Added | | | | | | | |
| Fertililser, lime and other | 182 | 38 | 57 | 59 | 93 | 12 | 0 |
| Rain/clover N Fixation | 125 | 0 | 2 | 4 | 2 | 4 | 20 |
| Irrigation | 9 | 0 | 6 | 9 | 32 | 8 | 33 |
| Supplements imported | 74 | 11 | 55 | 8 | 10 | 6 | 3 |
| | | | | | | | |
| Nutrients Removed | | | | | | | |
| As products | 125 | 22 | 28 | 8 | 31 | 2 | 8 |
| Exported effluent | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| As supplements | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| To atmospheric | 120 | 0 | 0 | 0 | 0 | 0 | 0 |
| To water | 39 | 0.9 | 12 | 63 | 58 | 9 | 14 |
| | | | | | | | |
| Change in internal pools | | | | | | | |
| Plant material | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Organic pool | 106 | 11 | 1 | 8 | 0 | 0 | 0 |
| Inorganic mineral | 0 | 3 | -15 | 0 | -2 | -3 | -3 |
| Inorganic soil pool | 0 | 13 | 93 | 0 | 49 | 21 | 36 |

Soil nutrient management in dairy farming systems

Financial Analysis

| | Totals | Whakapono | Whakapono | Whakapono | Waiora | Waiora | Waiora |
|------------------------------|-----------|--------------|-----------|-----------|--------------|--------|-----------|
| | | 14/15 Season | Per ha | Per kg MS | 14/15 Season | Per ha | Per kg MS |
| Hectares | 365 | | 155 | | | 210 | |
| Cows (peak) | | 552 | | | 748 | | |
| Stocking Rate | | 3.56 | | | 3.56 | | |
| Total Milk Production | 643,617 | 275,330 | 1776 | 499 | 368,287 | 1754 | 492 |
| Milk Income (incl dividend) | | 1,599,667 | 10,320 | 5.81 | 2,139,747 | 10,189 | 5.81 |
| Surplus Dairy Stock | 267,193 | 113,557 | 733 | 0.42 | 153,636 | 732 | 0.42 |
| | | | | | | | |
| Total Income | | 1,713,224 | 11,053 | 6.22 | 2,293,383 | 10,189 | 5.81 |
| | | | | | | | |
| Fertiliser | 288,534 | 135,071 | 871 | 0.49 | 153,463 | 731 | 0.42 |
| Supplement (fed on platform) | 497,481 | 197,544 | 1274 | 0.72 | 299,937 | 1428 | 0.81 |
| Animal Health | 134,487 | 55,957 | 361 | 0.20 | 78,530 | 374 | 0.21 |
| Other Farm Working Expenses | 1,989,451 | 851,445 | 5493 | 3.09 | 1,138,006 | 5458 | 3.09 |
| | | | | | | | |
| Total Expenses | 2,236,633 | 1,240,017 | 8000 | 4.50 | 1,669,936 | 7991 | 4.53 |
| | | | | | | | |
| Profit | | 473,207 | 3053 | 1.72 | 623,447 | 2930 | 1.69 |

Summary of Performance 2014/2015

| | Whakapono | Waiora |
|---|-----------|---------|
| Total kgMS sold | 275,330 | 368,287 |
| kgMS/peak cows | 499 | 492 |
| Peak Cows | 552 | 748 |
| Total N Fert Applied | 152 | 189 |
| Total Supplement Fed/peak cows (kgDM/cow) | 984 | 1110 |
| Herd Ave CS –Apr 15 | 4.6 | 4.7 |
| Estimated N Leaching (full year – Overseer) | 35 | 39 |



Soil nutrient management in dairy farming systems