Educational Farm Walk

Woodside

3rd December 2016

Government of South Australia

Natural Resources Adelaide and Mt Lofty Ranges

Australian Government

National Landcare Programme

Event Program (10.00am to 12.30pm)

- Introductions
- Observe horse keeping facilities and welfare of horses
- Understand horse management system
- Observe pasture and discuss grazing strategies
- Discuss pasture improvement options and seed mixes
- Weed control options
- The importance of laboratory soil testing
- Practical activities: soil pH testing, plant identification, water salinity testing, hay assessment.
- Questions throughout the session

SOIL TESTING

Results obtained from CSBP Soil and Plant Analysis Laboratory. Recommendations made by Land Management Advisory Service.

1. SOIL TEST RESULTS (Hay paddock)

Analysis (comprehensive test)	**Result**	**Units**	**Comment**
Colour	DKBR		
Gravel	5	%	
Texture	2.5		loam
Ammonium nitrogen	2	mg/Kg	Indication only – very low
Nitrate nitrogen	31	mg/Kg	Indication only – above average
Ext. Phosphorus	19	mg/Kg	Low (32mg/kg adequate for your PBI)
Ext. Potassium	249	mg/Kg	Adequate (120-250mg/kg adequate)
Ext. Sulphur	7.3	mg/Kg	Low (Adequate > 10mg/kg)
Organic carbon	3.75	%	Above average
Conductivity	0.092	dS/m	Low - good
Soil salinity ECe (est.)	0.83	dS/m	Low - good
pH level ($CaCl_2$)	4.8	pH	Strongly acidic - lime is required
pH level (H2O)	5.4	pH	Strongly acidic
Ext. Copper	0.15	mg/Kg	Low (0.5 to 1.0mg/kg adequate)
Ext. Iron	305.21	mg/Kg	Adequate
Ext. Manganese	16.59	mg/Kg	Adequate (> 10mg/kg adequate)
Ext. Zinc	3.01	mg/Kg	Adequate (adequate is 1.0 to 2.0mg/kg)
Exc. Aluminium	0.182	meq/100g	Possibly toxic to phalaris (Add lime)
Exc. Calcium	7.06	meq/100g	Adequate (adequate 5 to 10meq/100g)
Exc. Magnesium	1.55	meq/100g	Adequate (adequate is 1 to 3meq/100g)
Exc. Potassium	0.53	meq/100g	Adequate (adequate is 0.3 to 0.7meq/100g)
Exc Sodium	0.19	meq/100g	Acceptable (adequate is 0.3 to 0.7meq/100g)
Ext. Boron	0.58	mg/Kg	Acceptable (possibly toxic if > 5.0)
PBI	92.3		Low

2. NUTRIENT RECOMMENDATIONS

Soil Acidity

pH value is 4.8 in $CaCl_2$ which is strongly acidic. Apply 3 tonnes per hectare of good quality lime. Soil test again in 5 years.

Major Nutrients

Phosphorus is low. To maximise your pasture productivity you will need to add 52kg/ha of phosphorus which is a very large amount. I suggest you add 18kg/ha this year and consider another 18kg/ha next year. After which I suggest soil testing again before applying any more to determine how much more phosphorus is required. To address maintenance levels of phosphorus, apply 6.6kg/ha of phosphorus each year if stocking rates are average.

Potassium is adequate. No potassium is required.

Sulphur is low. Apply 10kg/ha of sulphur

If cutting hay, add 10 to 20kg/ha of nitrogen 6 to 8 weeks before cutting hay. If **not** cutting hay the pasture will still benefit from 10kg/ha of nitrogen this year in Spring. This can be done each year or every few years depending on cost and yield expectations.

Trace Elements

Copper is low. Apply 1kg/ha of copper. This will last 4 years.

3. FERTILIZER SUGGESTIONS

Applying 200kg/ha of single superphosphate with 0.5% copper will add 17.6kg/ha of phosphorus, 22.0kg/ha of sulphur and 1kg/ha of copper.

If cutting hay, apply 10 to 20kg/ha of nitrogen 8 weeks prior to cutting hay. If using a hayboosta fertilizer (12:5:24:5), apply 80 to 160 kg/hectare. Note: potassium and some phosphorus and sulphur will also be added.

If not cutting hay the pasture will benefit from 10kg/ha of nitrogen this year. Applying 25kg/ha of urea will add 11.5kg/ha of nitrogen. This can be done each year or every few years depending on cost and yield expectations.

Next year apply a further 200kg/ha of single superphosphate (no copper), then soil test to determine further requirements.

Note: The above fertiliser recommendations are aimed at maximising pasture productivity. However, for some landholders cost is prohibitive. Adding lesser amounts will still provide some response although not to the same extent.

Soil test again in 4 to 5 years.

WATER SALINITY

Recommended upper salinity levels for a range of farm activities (Source*:* Fontana 1995)

Usage	**Upper salinity (ppm or mg/L)**
Crops and pastures	
Field peas and beans	850
Clover	1,200
Corn, lucerne, millet, safflower, soybean	2,000
Phalaris, sorghum, sunflower	2,800
Fescue, perennial rye grass	3,200
Barley, wheat	3,700
Flowers and shrubs	
Violets	300
Aster, azalea, begonia, camellia, dahlia	700
Fuchsia, gladiolus, poinsettia, rose, zinnia	1,000
Chrysanthemum, oleander, stock	1,350
Fruit	
Loquat	300
Avocado, strawberry, walnut	700
Apple, almond, apricot, grapefruit, lemon, orange	1,000
Peach, pear, plum, olive, raspberry, fig, grape	1,350
Lawn grasses	
Fescue, ryegrass	1,200
Santa anna couch	5,000
Kikuyu	6,000
Vegetables	
French beans, peas	700
Capsicum, celery, lettuce	1,000
Broccoli, carrot, cauliflower, cucumber	1,350
Onion, potato, sweet corn, tomato	1,750
Asparagus, beetroot, cabbage, spinach	2,100
Livestock	
Poultry	3,500
Pigs	4,000
Horses	7,000
Dairy cattle	6,000
Beef cattle	10,000
Sheep	13,000
Fish	
Rainbow trout	9,300
Brown trout	3,700
Human consumption	1,500
Sea water	30,000

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