   

milestone report

internal project report

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Prepared by: Doug Alcock

 Graz Prophet Consulting

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**Phosphorus Efficient Pastures:
delivering high nitrogen and water use efficiency, and reducing cost of production across southern Australia
Activity B5. Extending the adaptation range of serradella systems**

**Milestone 2. 1 February 2017**

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Abstract

Both Doug Alcock (Graz Prophet Consulting) and Nancy Spoljaric (MFS) attended a meeting of the on farm delivery team for the project in December 2016. Experimental protocols were discussed and agreed upon with the overall coordinator, Jim Virgona od Graminus Consulting.

Host farms for the Monaro based participatory research component have been locked in and 2 sites on each farm have been pegged out and initial knock down herbicide treatment applied in late October and early November 2016. Orientation of the sites has been determined in accordance with the recommended protocols and replicates have been measured and pegged. Replicates have each been individually soil sampled in accordance with the agreed protocol and samples submitted to CSIRO for testing.

Hot and dry conditions have prevailed throughout the summer of 2016-17 which has not llowed regeneration of weeds for further weed control. Some rain has fallen in Early February and sites will be inspected to assess the potential for further herbicide control of weeds toward the end of February.

Application of fertiliser will be determined once the soil test of replicates becomes available with an ntended sowing of treatments during April depending on rainfall and soil moisture.

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# Milestone description

## Key Performance Indicator(s)

Experimental protocols (sowing, weed control, data collection) agreed with Graminus Consulting and the relevant consultant/project officer. Plans in place for sowing/commencement of field experiments. Provide update on communication and extension activities.

# Materials and Methods

## Participatory Research Site 1

### Site and Soil Type

A suitable site has been identified on the property Glen Finnan. The soil at this site is derived predominantly from the typical slate/shale association that crosses the Monaro and is a soil type that represents around a third of the arable area in the region.

Soil P levels have been tested and demonstrate the sites selected are around 60% and 30% of critical levels for clover growth respectively allowing a good test of serradella performance in sub optimal soil P levels

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Colwell P | Olsen P | PBI | PBI | predicted critical Colwell for clover |
|  | mg/kg | mg/kg | colwell  | unadjusted |
| Glen Finnan North Creek A | 18.1 | 11.4 | 49.6 | 46.5 | 29 |
| Glen Finnan North Creek A POA | 18.6 | 10.8 | 51.3 | 48.1 | 29 |
| Glen Finnan North Creek B | 9.66 | 5.6 | 53.0 | 51.3 | 29 |
| Glen Finnan North Creek B (duplicate of above sample) | 8.60 | 6.4 | 53.2 | 51.7 | 29 |

Results of the full soil test are pending.

## Participatory Research Site 2

### Site and soil type

A suitable site has been identified on the property Redcliff. The soil at this site is also derived predominantly from the typical slate/shale association that crosses the Monaro.

Soil P levels have been tested and demonstrate the sites selected are only around a third of the critical levels for clover growth. Additional fertiliser will likely be required to boost the soil P to around 2/3 of critical levels while still allowing a good test of serradella performance in sub optimal soil P levels

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | predicted critical Colwell for clover |
|  | Colwell P | Olsen P | PBI | PBI |
|  | mg/kg | mg/kg | colwell  | unadjusted |  |
| Redcliff windy East | 10.8 | 5.1 | 70.3 | 68.4 | 31 |
| Redcliff windy South | 5.80 | 2.9 | 69.4 | 68.4 | 31 |
| Redcliff windy West | 12.1 | 5.2 | 101 | 98.6 | 33 |

Results of the replicate soil tests are pending.

# Success in meeting the milestone

## Results

### Agreed protocols

Both Doug Alcock (Graz Prophet Consulting) and Nancy Spoljaric (MFS) attended a meeting of the on farm delivery team for the project in December 2016. Experimental protocols were discussed and agreed upon with the overall coordinator, Jim Virgona of Graminus Consulting.

All measurement protocols were agreed and sowing of the Monaro sites will be conducted at the same time as parallel experiments being conducted by Richard Hayes from NSW DPI as part of the overall P4P project. We will use the same plot sowing equipment which is a cone seeder supplied by NSW DPI. Richard hayes will also source and supply the serradella seed for the MFS Monaro sites.

### Site selection

Based on soil test, location, access and topography the two sites progressed with are the property of Owen Smith “Glen Finnan”, Dry Plains via Cooma and Ned Kater “Redcliff” west of Bombala.

Intitial weed control at Redcliff was conducted by share farmer John Jeffries in late October. A tank mix of Glyphosate and dicamba was used with the Dicamba included to control sorrel and other broadleaf weeds present.

Intial weed control at Glen Finnan was conducted by the owner in early November once the contry had dred up sufficiently from the extrememly wet winter to ensure the machinery would not bog. Only glyphosate was used as a knockdown herbicide at this location which upon inspection in December proved to have given adequate kill of the bulk of the Poa tussovk and annual grasses at the site but there was some evidence that overshadowing of the understory plants may have let some clover plants survive this first spray. Heavy tussock will require some treatment of the sites before sowing eg mechanical or burning in orger to remove the overburden of trash left by the dead Poa tussock.

Producer cooperation to this point has been excellent

## Discussion

None required at this stage

# Conclusions/recommendations

## Site sowing and establishment

Germination of weeds after late summer rain will need to be monitored to ensure good weed control going into an Autumn sowing. Extreme hot dry conditions over summer 2016-17 have baked the soil and left a very dry soil profile across the Monaro region. This may compromise establishment of the trials unless good rain is received in early autumn. Due to the harsh winters we experience sowing should not be delayed beyond the end of April regardless of moisture conditons.

# Communications

None yet planned. Communication strategy yet to be determined in consultation with project managers.

# Appendix (optional)