



*CASE STUDY*

***AFRICAN  
LOVE  
GRASS***

# **“WEATHER VALE” PASTURE PROGRAM**

## **Control of African Love Grass**

By Jim Benton, “Weather Vale”, Glen Innes, NSW, 2370 (May 2008)

### **OVERVIEW**

The “Weather Vale” Pasture Program incorporates a system of managed grazing and invasive weed control, which leads to a sustainable, productive and diverse pasture of both native and introduced species. Reduced weed infestations, particularly Love Grass, results in a more diverse, healthier and stable plant population.

Soil health is improved because of deeper-rooted plants and increased soil organic matter. The risk of soil erosion is minimal because no ploughing takes place and not less than 90% (usually 100%) of groundcover is maintained at all times. Rainfall use efficiency is enhanced and excessive run-off is reduced.

### **BACKGROUND**

#### **Property Description and Management**

“Weather Vale” is a 136 Ha granite property subdivided into 20 paddocks ranging in size from 3 to 13 Ha. The property is stocked principally with young cattle from April to January each year and is lightly stocked from January to April to allow for pasture build up and seed set.

#### **Pasture History**

“Weather Vale” has been fertilized with superphosphate for the last 30 years and pasture establishment until 2002 followed traditional methods. The results were, at best, just satisfactory. Invasive weeds, particularly Love Grass were becoming dominant.

In early 2002 heavy cyclonic rain on newly ploughed ground resulted in severe erosion and the complete failure of new pasture in a couple of paddocks. A conscious decision was made to discontinue traditional ploughing methods.

#### **Today’s Methods**

In 2005, spot spraying of Love Grass was commenced and in the autumn of 2006, a Swingwiper was purchased. Following various trials and observations, a new managed grazing and wiping system was developed. In general, the current system is as follows:

1. Cattle are grazed in one mob (usually 150 – 200 head) for 3 or 4 days per paddock, eating down quality pasture both native and introduced.
2. Selected paddocks are wiped with a Swingwiper during the weed growing season using Glyphosate. The rate of chemicals applied varies according to Love Grass height and density. Only target species have chemicals applied to them as the desirable pasture has been fed off.

3. The paddock is spelled for 8 to 10 weeks depending on the season. This allows grazed plants to grow, develop root systems and set seed. New pasture seedlings can germinate in the dead mulch.
4. Selected paddocks are top dressed with perennial pasture seed, fertilized and harrowed. If deemed suitable, these paddocks may be omitted from the grazing rotation for a suitable time to encourage pasture seed set and seedling establishment.

### Facts and Figures

- Total quantity of Glyphosate 450 used - 241.4 Litres i.e. about 12 drums.
- Total area treated (various passes) - 50 Ha or 123 acres.

***Details of Glyphosate 450 wiping applications, dates, rates and chemical usage are on the following pages together with photographs illustrating results.***

### ***Horse Paddock, area 2 Ha - 5 acres***

| Date           | Rate   | Treatment     | Glyphosate Qty (Litres) |
|----------------|--------|---------------|-------------------------|
| 14th Oct 2006  | 50 : 1 | Multiple Pass | 1.0                     |
| 1st Feb 2007   | 50 : 1 | Multiple Pass | 1.0                     |
| 8th April 2007 | 50 : 1 | Multiple Pass | 1.6                     |
|                |        |               | <b>Total = 3.6</b>      |

**BEFORE**



**Picture 1** - Taking the wiper for a test run upon delivery in May 2006

**AFTER**



**Picture 2** shows the results on 27th February 2008 - the Horse Paddock is fully productive again

### **Chemical used on average: 1.80 Litres / Ha.**

The pasture is back into full production again, with a total chemical use of only 1.8 Litres / Ha. The Horse Paddock will require only maintenance wiping every one or two years.

**Bathurst Burr Paddock, area 9 Ha - 22 acres**

| Date          | Rate   | Treatment   | Glyphosate Qty (Litres) |
|---------------|--------|-------------|-------------------------|
| 2nd Jan 2007  | 25 : 1 | Single Pass | 2.0                     |
| 2nd Oct 2007  | 50 : 1 | Double Pass | 2.0                     |
| 5th Oct 2007  | 50 : 1 | Double Pass | 2.0                     |
| 6th Oct 2007  | 50 : 1 | Double Pass | 2.0                     |
| 7th Oct 2007  | 50 : 1 | Double Pass | 2.0                     |
| 12th Oct 2007 | 50 : 1 | Double Pass | 1.3                     |
| 13th Oct 2007 | 50 : 1 | Double Pass | 5.1                     |
| 14th Oct 2007 | 50 : 1 | Double Pass | 5.1                     |
| 15th Oct 2007 | 50 : 1 | Double Pass | 5.1                     |
| 17th Oct 2007 | 50 : 1 | Double Pass | 5.1                     |
| 8th Dec 2007  | 25 : 1 | Single Pass | 8.0                     |
| 9th Dec 2007  | 25 : 1 | Single Pass | 8.0                     |
| 15th Dec 2007 | 25 : 1 | Single Pass | 5.0                     |
| 16th Dec 2007 | 25 : 1 | Double Pass | 2.6                     |
|               |        |             | <b>Total = 55.3</b>     |



*Picture 4 shows the Bathurst Burr Paddock results on 27 Feb 2008.*

**Chemical used on average: 6.15 Litres / Ha.**

The pasture is in full production again. Further wiping planned for 2008/2009.

**Shannon Vale Road Paddock, area 6 Ha - 16 acres**

| Date          | Rate   | Treatment   | Glyphosate Qty (Litres) |
|---------------|--------|-------------|-------------------------|
| 20th Oct 2007 | 50 : 1 | Single Pass | 2.6                     |
| 2nd Jan 2008  | 50 : 1 | Double Pass | 2.3                     |
| 3rd Jan 2008  | 50 : 1 | Double Pass | 2.0                     |
| 6th Jan 2008  | 50 : 1 | Double Pass | 5.1                     |
| 11th Jan 2008 | 50 : 1 | Double Pass | 5.0                     |
| 13th Jan 2008 | 50 : 1 | Double Pass | 5.0                     |
| 14th Feb 2008 | 50 : 1 | Single Pass | 5.0                     |
| 15th Feb 2008 | 50 : 1 | Single Pass | 2.0                     |
|               |        |             | <b>Total = 29.0</b>     |



*Picture 5 shows the Shannon Vale Road Paddock results on 27 Feb 2008.*

**Chemical used on average: 4.80 Litres / Ha.**

With the bulk of the weeds killed, only future maintenance wiping will be needed. Slashing or harrowing will speed up the break down of the dead vegetation.

**SGS Paddock, area 4 Ha - 5 acres**

| Date          | Rate   | Treatment   | Glyphosate Qty (Litres) |
|---------------|--------|-------------|-------------------------|
| 21st Feb 2008 | 25 : 1 | Single Pass | 10.0                    |
| 23rd Feb 2008 | 25 : 1 | Single Pass | 10.0                    |
| 24th Feb 2008 | 50 : 1 | Single Pass | 5.0                     |
|               |        |             | <b>Total = 25.0</b>     |



*Picture 3 shows the SGS Paddock results on 27 Feb 2008.*

**Chemical used on average: 6.25 Litres / Ha.**

The SGS Paddock shows excellent results less than a week after wiping, with nearly all of the African Love Grass killed. Further wiping is planned for 2008/2009.

Detailed information on wiping details for “Squire Paddock”, “Bull Paddock”, “Black Flat Paddock”, “First 40” and “Spud Paddock” are available on request.

### ***Squire Paddock, area 6 Ha - 15 acres***

- Starting date wiping: 26<sup>th</sup> November 2006, last wipe 2<sup>nd</sup> April 2007.
- Chemical used on average: 3.00 Litres / Ha.

Only maintenance wiping is required to keep A.L.G. at low levels.

### ***Bull Paddock, area 6 Ha - 15 acres***

- Starting date wiping: 23<sup>rd</sup> December 2006, last wipe: 2<sup>nd</sup> December 2007
- Chemical used on average: 2.40 Litres / Ha.

The paddock is now clean, only maintenance wiping is planned for 2008/2009.

### ***Black Flat Paddock, area 7 Ha - 17 acres***

- Starting date wiping: 19<sup>th</sup> January 2008, last wipe: 28<sup>th</sup> January 2008.
- Chemical used on average: 7.85 Litres / Ha.

The paddock is now clean, only maintenance wiping is planned for 2008/2009.

### ***First 40 Paddock, area 5 Ha - 12 acres***

- Starting date wiping: 15<sup>th</sup> October 2006, last wipe: 22<sup>nd</sup> March 2007
- Chemical used on average: 3.25 Litres / Ha.

The paddock is now clean, only maintenance wiping is planned for 2008/2009.

### ***Spud Paddock, area 5 Ha - 12 acres***

- Starting date wiping: 14<sup>th</sup> January 2008, last wipe: 13<sup>th</sup> February 2008
- Chemical used on average: 5.60 Litres / Ha.

The pasture is in full production again, with further wiping is planned for 2008/2009.

# SUMMARY

by Martin Hazenveld, Swingaway P/L (June 2008)

## FACTS AND FIGURES

- **Total quantity of Glyphosate 450 used** (until Feb 2008): **241 Litres**
- **Total area treated** (in various passes): **50 Ha (123 acres)**
- **Average Glyphosate 450 use** (for all wipes): **4.82 Litres / Ha**
- **Average chemical costs:** at \$130 / 20 Litre drum (\$6.50 / L): **\$ 31.30 / Ha**  
at \$260 / 20 Litre drum (\$13.00 / L): **\$ 62.70 / Ha**

There will be much less chemicals needed for follow-up maintenance wiping after the initial wipe out of the bulk of African Love Grass.

**Wiping costs using a Quad:** Labour + quad + Q-2.8 Swingwiper at a cost of \$ 52 / Hr for owner operator, is around **\$25 per Ha for a single wipe**. This is based on a 2.6-metre effective wiping width (0.2-metre overlap) and an average operating speed of 8 Km / Hr.

**Wiping costs using a Tractor:** Labour + Tractor + T-3.6 Swingwiper at a cost of \$ 68 / Hr for owner operator is also **\$25 per Ha** for a single wipe. This based on a 3.4-metre effective wiping width (0.2-metre overlap) and an operating speed of 8 Km / Hr.

**Jim's total estimated costs for wiping and chemicals would have been in the region of \$160 and \$190 per Ha for achieving the illustrated results. We believe that a single maintenance wipe, at a cost of \$35 to \$40 every year or two, would keep the A.L.G. under control.**

## COMPARISON

| Option                  | Initial cost        | Annual cost  |
|-------------------------|---------------------|--|
| Wiping existing pasture | \$160 to \$190 / Ha | \$35 to \$40 / Ha<br>every couple of years                                   |
| Pasture renovation      | \$350 to \$650 / Ha | Multiple times of Boom Spraying per year, at a cost of \$40 to \$80 per time |

Not carrying out effective weed control can drastically reduce pasture productivity. In case of a 50% reduction and a price of \$ 6,000 / Ha means that \$ 3,000 / Ha is idle not being productive at all.

## WIPING OPTIONS & ASSOCIATED COSTS

The use of following options for weed wiping depends on weed types, weed densities, chemicals and mixing ratio used, climatic conditions and timing. These options are a guide only and have to be field tested for suitability before use.

### Scenario 1

1. **Double wipe** the paddock (the first time) at a 100% or lower weed density setting on chemical controller.
2. Spread the dead weeds by slashing, mulching or harrowing.
3. Graze good pasture down.
4. **Double wipe** the paddock again at a 40% or lower weed density settings on controller.

| Costs for wiping          | Chemicals                           | + Wiping    | = Sub-Total          |
|---------------------------|-------------------------------------|-------------|----------------------|
| <b>First double wipe</b>  | <b>100%</b> of 2+2 L/Ha at \$13 / L | \$25 + \$25 | \$102.00             |
| <b>Second double wipe</b> | <b>40%</b> of 2+2 L/Ha at \$13 /L   | \$25 + \$25 | \$70.80              |
| <b>Total</b>              |                                     |             | <b>\$172.80 / Ha</b> |

### Scenario 2

1. **Double wipe** the paddock (the first time) at a 100% or lower weed density settings on the controller.
2. Spread the dead weeds by slashing, mulching or harrowing.
3. Graze good pasture down.
4. **Single wipe** the paddock at a 40% or lower weed density settings on the controller.

| Costs for wiping          | Chemicals                           | + Wiping    | = Sub-Total          |
|---------------------------|-------------------------------------|-------------|----------------------|
| <b>First double wipe</b>  | <b>100%</b> of 2+2 L/Ha at \$13 / L | \$25 + \$25 | \$102.00             |
| <b>Second single wipe</b> | <b>40%</b> of 2+2 L/Ha at \$13 /L   | \$25        | \$35.40              |
| <b>Total</b>              |                                     |             | <b>\$137.40 / Ha</b> |

### Scenario 3

1. **Single wipe** the paddock (the first time) at a 100% or lower weed density settings on the controller.
2. Spread the dead weeds by slashing, mulching or harrowing.
3. **Single wipe** the paddock again but **now in opposite direction\*** at **55%** or lower weed density settings on the controller.

\* The first wipe leaves a part of the weed green and alive (about 5%). The green part of the weed that is usually fanned down, can be lifted and effectively wiped coming from the opposite direction to the first wipe.

| Costs for wiping          | Chemicals                           | + Wiping | = Sub-Total         |
|---------------------------|-------------------------------------|----------|---------------------|
| <b>First single wipe</b>  | <b>100%</b> of 2+2 L/Ha at \$13 / L | \$25     | \$51.00             |
| <b>Second single wipe</b> | <b>55%</b> of 2+2 L/Ha at \$13 /L   | \$25     | \$39.30             |
| <b>Total</b>              |                                     |          | <b>\$91.30 / Ha</b> |

In Jim's case, after wiping his total of 50 Hectares, scenario 3 would mean a cost savings of \$ 4,125.00 over scenario 1. See also our "practical wiping hints" leaflet for wiping conditions details.

## **RESUME**

### **Jim's conservation farming program incorporated the following:**

- Effective weed control with the use of a Swingwiper.
- The use of non-toxic, non-selective herbicides at low rates.
- Herbicides applied onto weeds only.
- Pasture improvement with the application of fertilizer and pasture seeds.
- Rotational grazing.
- Low risk in every decision making process and undertaking.

### **He achieved:**

- A stop to the further weeds spread and the removal of nearly all mature weed species. Only follow-up maintenance wiping is needed for the control of the few remaining and newly emerging weeds.
- Increased microbial activity in the soil, breaking down the root system of the dead weeds, is feeding good pasture.
- Fertilizer used up by pasture, not by weeds.
- A No With Holding Period, using Glyphosate.
- Healthy soils, this by sustaining the microbial activity by not using nasty toxic chemicals.
- Increased pasture production, with over 95% coverage of productive, well established pasture.
- The reduction of newly emerging weeds, due to the denser pasture cover as a result of rotational grazing.
- A minimal topsoil loss.
- Continued paddock production, with a rapid increase in pasture productivity.
- Cost savings over pasture renovation. Pasture renovation, with its many risks and disadvantages, costs between \$350 and \$650 / Ha. Wiping costs between \$90 and \$180 / Ha.

### **Resulting in:**

- A substantial increase in carrying capacity (our estimate is in excess of 100%).
- Higher gross margins.
- The personal satisfaction from a low risk, low input / high result outcome for increased pasture production.



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