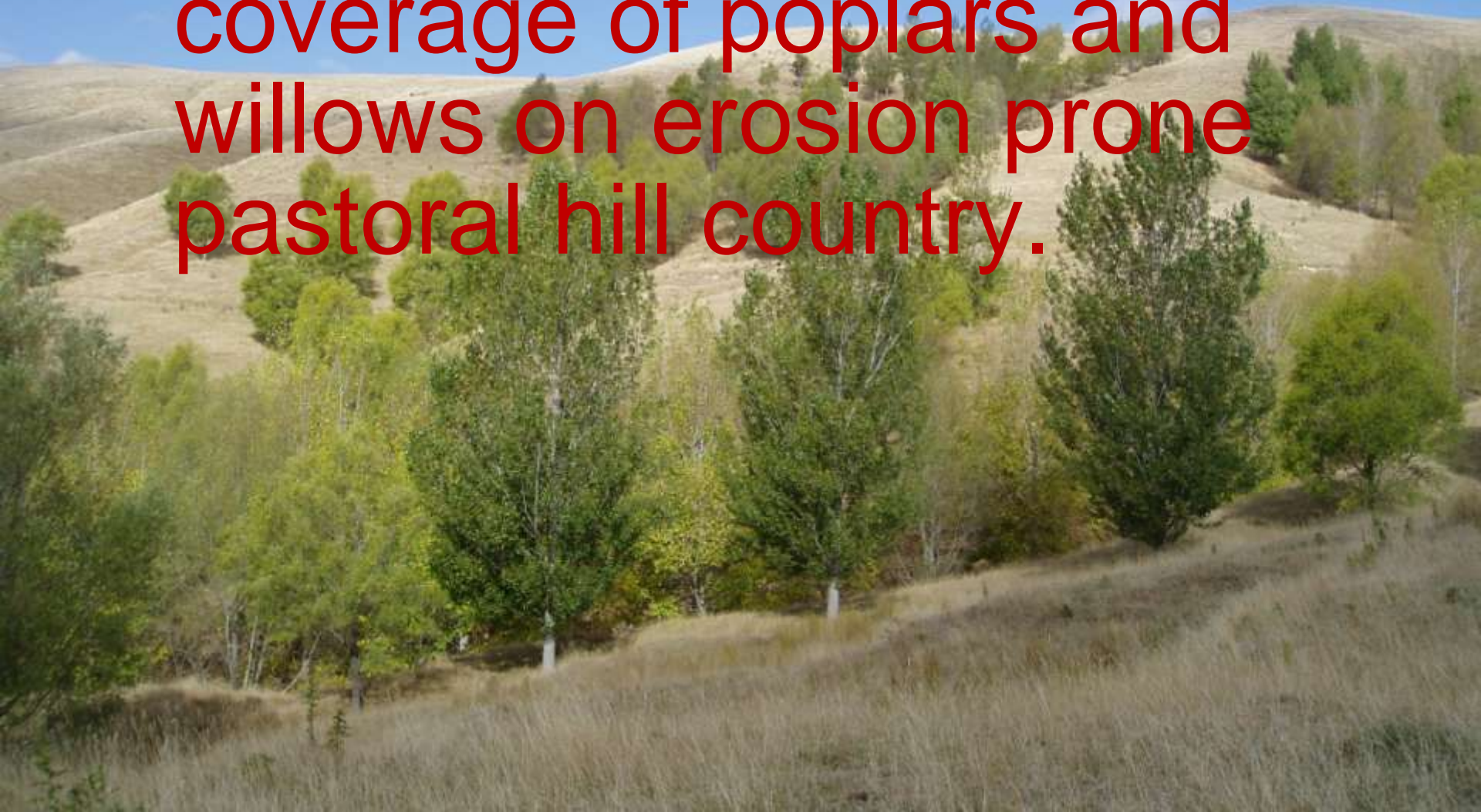
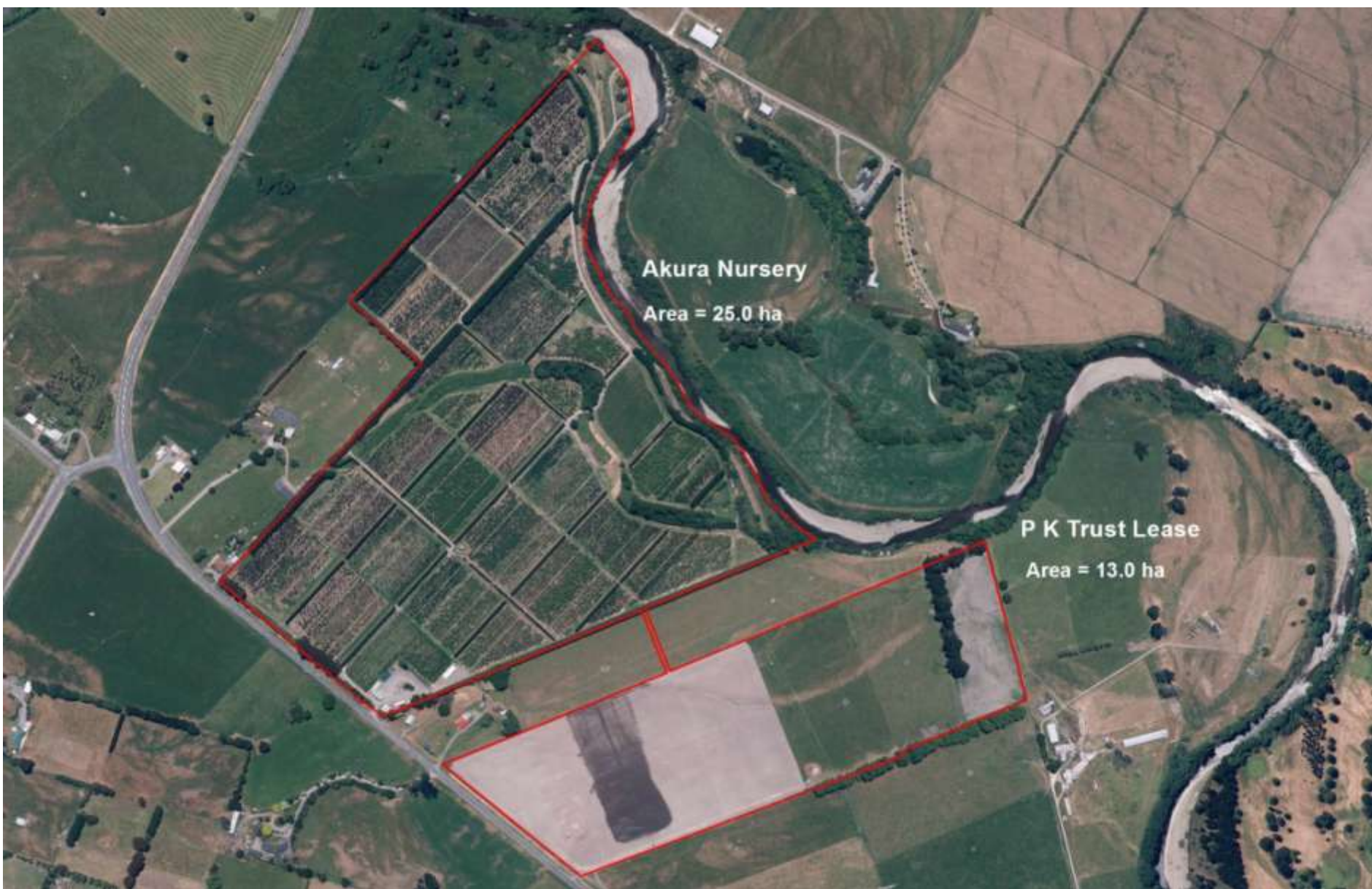


Keys to achieving successful coverage of poplars and willows on erosion prone pastoral hill country.







Akura Nursery  
Area = 25.0 ha

P K Trust Lease  
Area = 13.0 ha



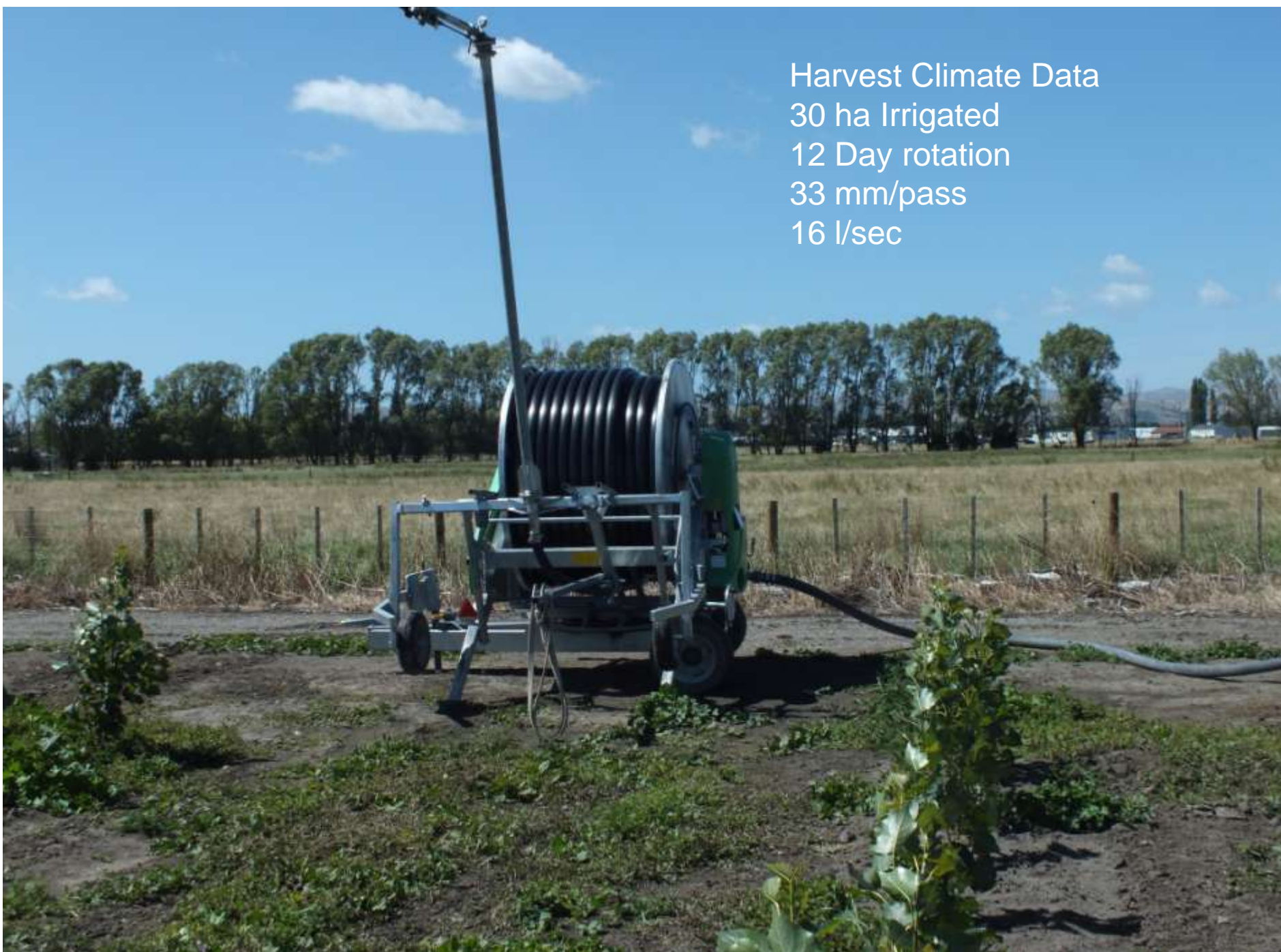


Centralised production / processing  
Tractor management  
Fully sheltered  
Irrigation  
Fertilised

23 8 24



Harvest Climate Data  
30 ha Irrigated  
12 Day rotation  
33 mm/pass  
16 l/sec





Spacing 2.5 x 0.6 metres  
4,800 stools / ha








Each clone colour identified



A photograph of a poplar plantation. The image shows a long, straight row of young poplar trees planted in a field. The trees are tall and slender, with light-colored bark and dense green foliage. The ground is covered with dry leaves and twigs, and the trees are planted in a regular, spaced-out pattern. The background shows a clear sky and a distant horizon.

Poplar 65% Clones 12  
Willow 35% Clones 5





Intensive pruning Regime





**Pole Production Model**

Based on 55,000 Poles

Updated Nov 2014

**Poplars**

**Model**

P Crowsnest	4000	7.3%
P Kawa	1000	1.8%
P Veronese	12000	21.8%
P Pakaraka	100	0.2%
P Argyle	100	0.2%
P Selwyn	2500	4.5%
P Fraser	6500	11.8%
P Weraiti	4200	7.6%
P Otahoua	6000	10.9%
P Toa	200	0.4%
P Pecam	800	1.5%
P Geyles	400	0.7%
P Mapiu	400	0.7%
P Trials	300	0.5%

**Poplar Totals 38500 70.0%**

S Matsudana 693	100	0.2%
S Matsudana 721	100	0.2%
S Tangoio	12000	21.8%
S Moutere	3000	5.5%
S Matsx alba 1332	500	0.9%
S Alba Vitellina	600	1.1%
S Trials	200	0.4%

**Willow Totals 16500 30.0%**


**Total Pole Production 55000 100.0%**



A photograph of a dense, young poplar plantation. The trees are arranged in neat, parallel rows, creating a central path that leads into the distance. The trees are tall and thin, with light green foliage. The ground is covered with dry leaves and some green grass. The lighting is bright, suggesting a sunny day.

2 – 3 year Rotations  
1 – 2 leaders/stool  
150,000 Stools





Three metre A Grade Pole driven  
2014 28,000 3m Poles



## Overhead irrigation



A Grade Pole

3 metres long  
55 – 70 mm Base diameter,  
60 deg slant cut  
Colour coded





Glencary post 1977 Winter





Castlepoint March 2005





Weraiti 1987 Poplar and Willow Trial

Field testing of new Clones  
Successful hill trialling brought back for Nursery production





Why we field test  
Undesirable form  
Brittleness  
Heavy crowning (shading)  
Unpalatability





Helicopter distribution, LMO positioned  
2 x 25 3m drops, Clonal mixes to site





## Planting specifications

- Colour code to site
- Dynex sleeved (1.7m)
- Selected site
- 800 mm depth (driven)
- 10 -15m spacing
- Vee crush cultivation
- Top soil compaction

- Field Supervisor checked
- Peer reviewed
- GPS mapping
- Annual audits





Lone Star Farms  
500 3m Poles (2013)  
Helicopter Spread  
Contract planted  
\$23.80 / pole  
30 – 60% Grant rate









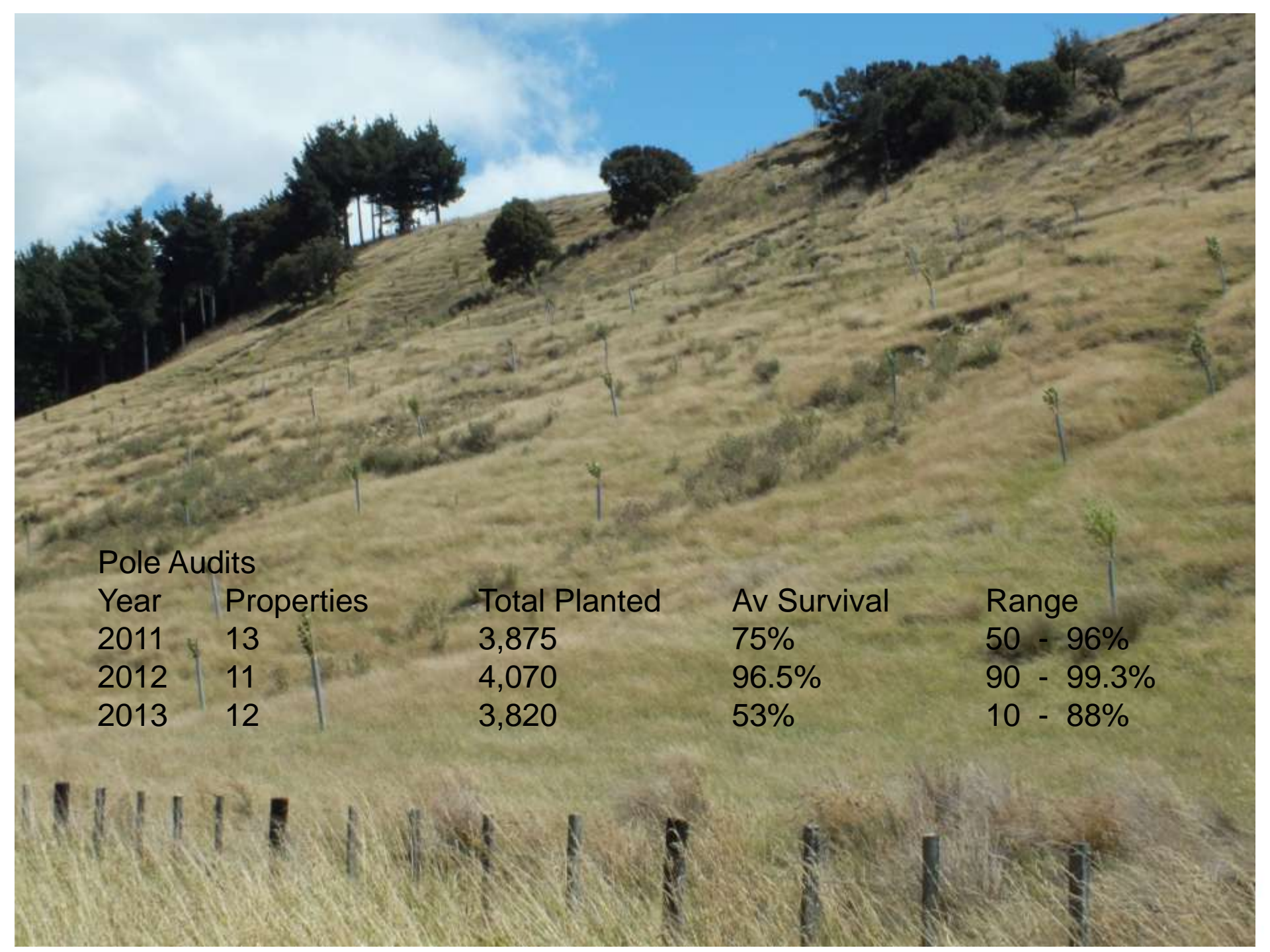
Sulphur Wells  
Dry northerly exposed slope  
Poplar form pruned to single leader





Okar Earthflow Roadside protection



A photograph of a grassy hillside under a blue sky with some clouds. The hillside is covered in dry, yellowish-brown grass. There are several trees scattered across the slope, including a large cluster of dark green trees on the left and a few smaller trees further up. In the foreground, there is a fence made of wooden posts and wire, partially obscured by tall grass. The overall scene is a rural or agricultural landscape.

## Pole Audits

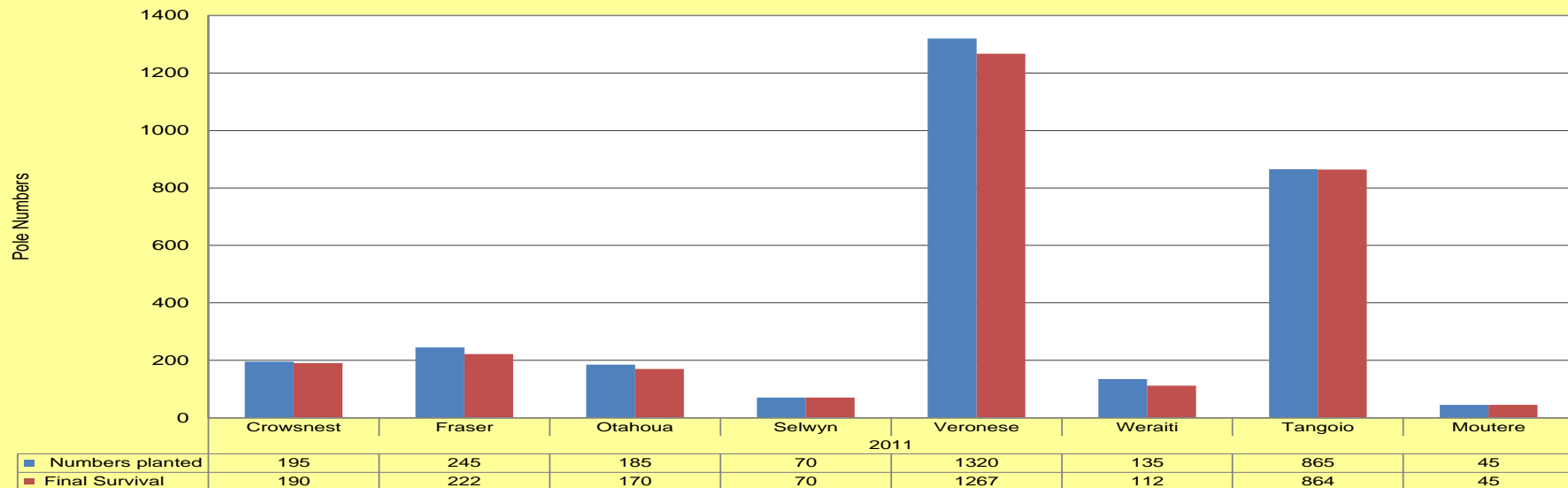
Year	Properties	Total Planted	Av Survival	Range
2011	13	3,875	75%	50 - 96%
2012	11	4,070	96.5%	90 - 99.3%
2013	12	3,820	53%	10 - 88%



Farm · Species · Location · Planting Month

Numbers planted Final Survival

### Pole Survival Numbers

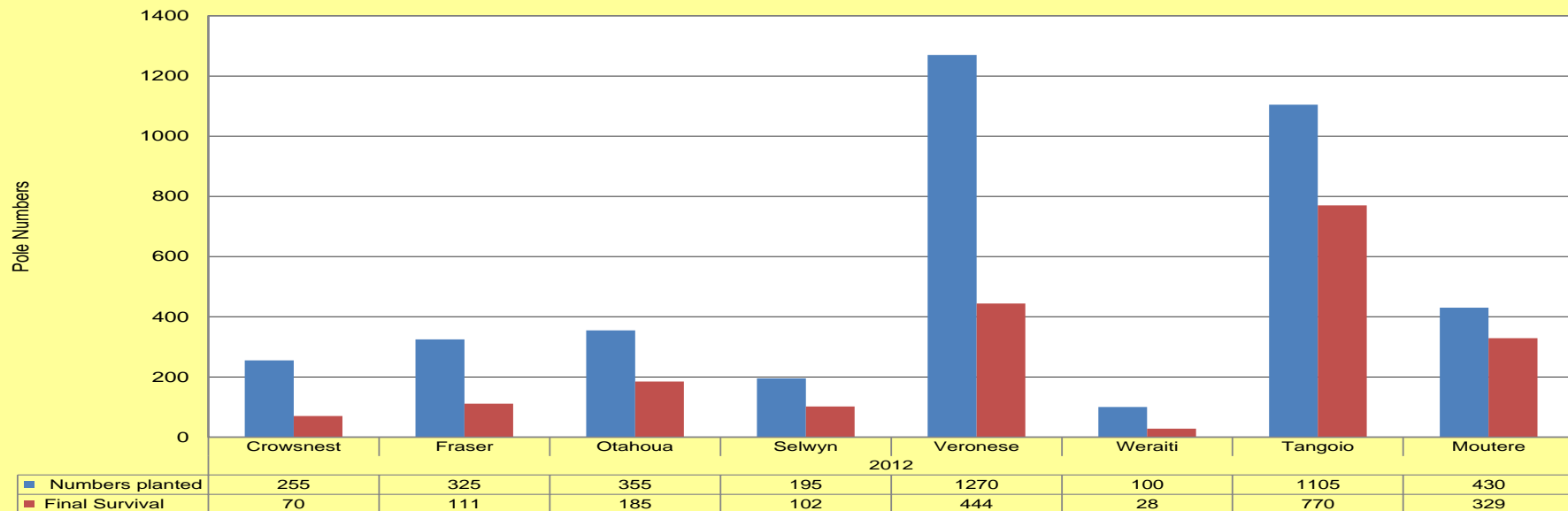


Year: 2011 Variety:

Farm · Species · Location · Planting Month

Numbers planted Final Survival

### Pole Survival Numbers




Year: 2012 Variety:



		Tolerance to:		
	Colour	Drought	Possum	Wind
<b>Poplars</b>				
<b>Sheltered to Exposed Sites</b>				
Argyle	Grey	Ex	Av	Av
Crowsnest	Yellow/Red	Ex	Av	Av
Fraser	Brown	Ex	Av	Ex
Selwyn	Green/Lilac	Ex	Av	Ex
Veronese	Red	Ex	Av	Ex
<b>Sheltered to Semi-Exposed Sites</b>				
Kawa	Black	Av	Av	Av
Otahoua	White	Av	Av	Av
Pakaraka	Red/Yellow	Av	Av	Av
Toa	Green	P	Av	Av
Weraiti	Lilac	Av	Av	Av
Pecam	Blue/Red	Av	Ex	Av
Geyles	Blue/Green	Av	Ex	Av
Mapiu	Blue/Orange	Av	Ex	Av
<b>Sheltered Sites/Moist Gullies</b>				
Yeogi	No colour	Av	Ex	Ex
<b>Willows</b>				
<b>Exposed Sites</b>				
Mats 693	White/Red	Ex	Av	Av
Tangoio	Blue	Ex	Av	Ex
<b>Sheltered Sites</b>				
Moutere	Yellow	Av	P	Ex



An aerial photograph of a wide, green valley. The valley floor is filled with a dense forest of trees, appearing brownish-green. The surrounding hills are covered in lush green grass. The sky is blue with scattered white clouds. The overall scene is a natural landscape before a storm.

Eringa prior to July 2006 Storm  
Intensity 50mm in 2 hours





Waikoukou 50 years of Slope planting