



“Protecting our Productive Soils”

Establishment Guide

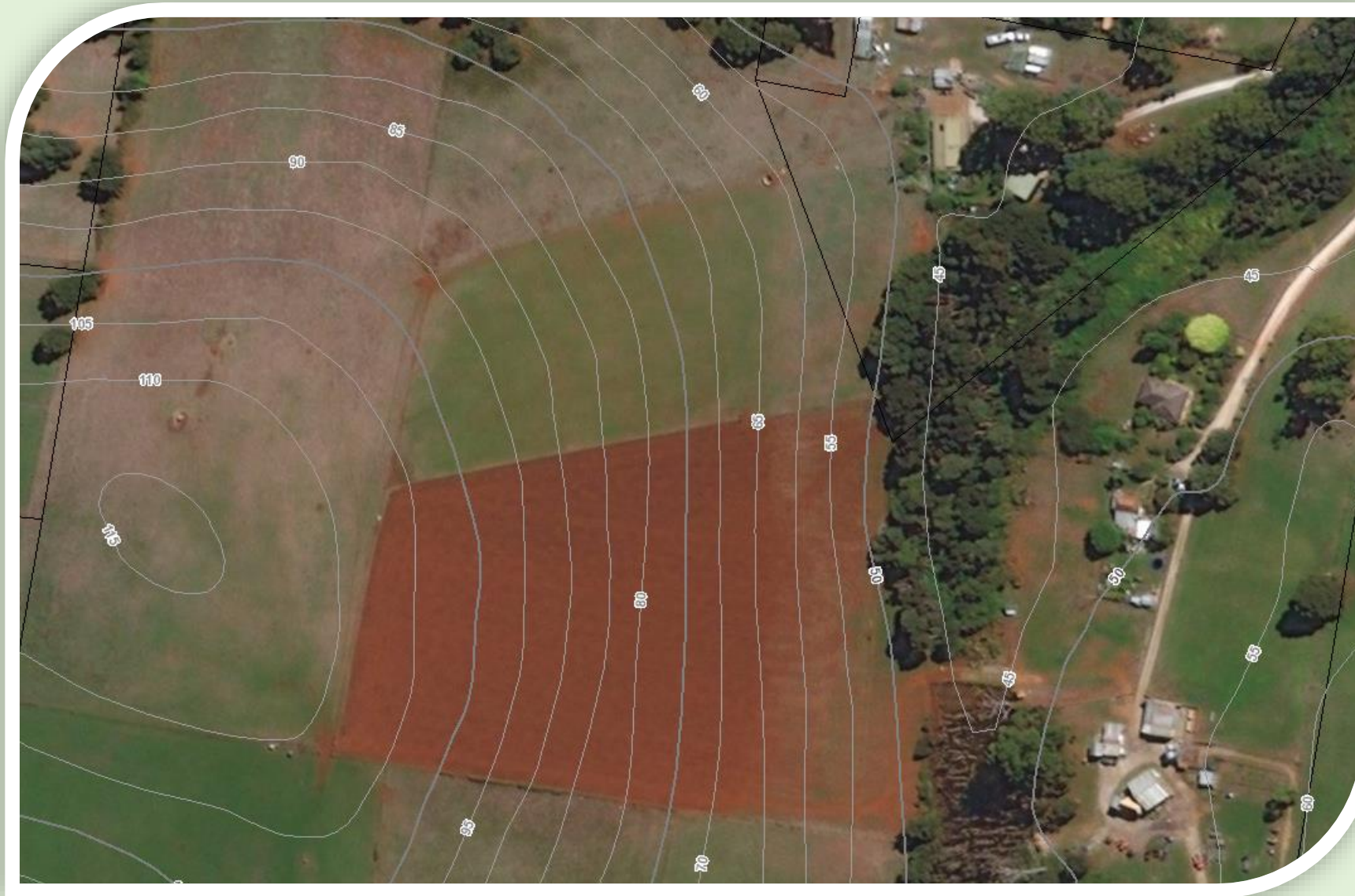
*Hillslope erosion risk reduction using **Autumn Cover Cropping***



Sediment plumes 2014

- **Project focus area** – Ferrosol soils used for intensive mixed cropping
- **Crops include** - potatoes, carrots, peas, cauliflower, broccoli, cabbages, Brussel sprouts, onion plus extraction crops to include pyrethrum, poppies, canola and hemp
- **Hillslope erosion by water** has been identified as being of National Significance by McKenzie et al (2017)
- In Tasmania individual rainfall event of significance can erode up to **15T/ha** (Dr Bill Cotching, *pers com*)





Elevation

Drop in elevation = 60m

Distance from top to bottom = 180m

$$60/180 * 100 = 33\%$$

Generally any site above 20 percent slope is deemed too steep

15 percent slope is typical for the cropping region

Multiple benefits with multiple options – choose one!

Soil health:

- *Erosion control*
- Improved structure
- Improved biology
- Improved infiltration
- Improved nutrient scavenging
- Disease and weed suppression
- Improved nutrient retention
- Improved water holding capacity
- Uptake of residual herbicides

Longer term cost savings:

- Fertiliser, chemicals, fuel and irrigation requirements, etc.



Post-harvest site preparation

- **Plan for the next cash crop and work back from estimated sowing date range**
- Allow **16 - 20 approx.** weeks assuming average weather conditions
- Prepare in late **Feb** (approx.)
- Consider slashing stubble, then plough or light disc depending on soil structure
- Sow cover crop ahead of the next significant rainfall event around mid **April**
- Consider broadcast spreader followed by a light disc at 20mm, or rake
- For tougher ground (i.e. headlands) use a Roterra tiller
- **Potentially prepare the Cover as if it were your next crop, soil condition is better, less to do in Spring**



Cover crop emergence

- Sow Cover Crop mix **mid April** (approx.)
- Potentially ahead of significant rainfall event (10mm)
- Irrigate if required (if no rainfall and/or timing constraints)
- Ref to “**Erosion Control Cover Crop Workflow Plan**” as a guide to timing
- At day ten = 15cm root depth
- At day fifteen = 20cm root depth



Cover crop closure

- At day 25 = 30cm root depth
- At day 50 = 35cm average with some exceeding 50cm
- Plan for termination **prior to flowering**
- Approx. termination date **July**
- Rule of thumb guide:
 - Bellow the knee
 - First sight of **any** flowering
- Consider options:
 - Herbicide (non-selective)
 - Mulching



Cover crop termination

- **Chemical termination** using Glyphosate mix at recommended label rate **mid July**
- Decomposition commences quickly as plants are healthy therefore uptake of herbicide is rapid
- Leave biomass to decompose during July - August
- Consider **mechanical incorporation** instead of chemical option, however more passes of equipment will be required (potentially an option for second season attempt)



Cover crop decomposition and soil structure observation



Cash crop seeding

- Site prepared for sowing cash crop from late August onwards
- Depending on results, and variety of cash crop to be sown, consider direct drilling
 - One pass options:
 - Disc seeding
 - Cultivating seed drilling
 - Air seeding
 - Other options for ground prep:
 - Light rotary hoe
 - Grizzly ripper
 - Roterra tiller



Cash crop irrigation

- Note:
 - Soil structure improvement
 - Moisture infiltration improvement
 - Soil moisture more even
 - Erosion risk reduced
- Monitor:
 - Rainfall events
 - Irrigation
 - Irrigation blow outs



Standard “Green manure” mix – being deep rooted and nitrogen fixing

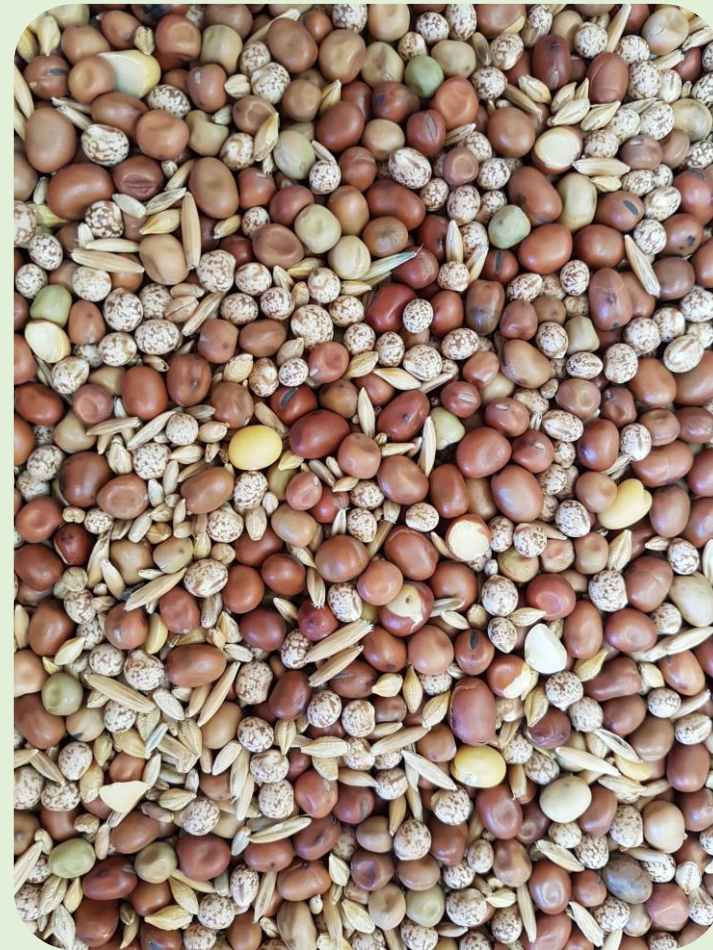
Required pH between 5 - 7

1. Tic beans
2. Lupins
3. Grey peas
4. Cereals

Seeding rate suggestions:

- 50kg / ha
- 100kg / ha (headlands)
- Consider 100kg / ha for perimeter **if** weed pressure high

Pre-order from your preferred supplier, generally available in 25 kg bags



Workflow Plan available as a “guide only” due to seasonality

- Step by step process
- Ground preparation options
 - Emergence timeframes
- Cover crop termination options
 - Visual ques
 - Growth stage
 - Seasonal influences
- Equipment suggestions
- Approx. activity date range

Erosion Control Autumn Cover Crop Workflow Plan

Cover Crop site location: _____



Transition from _____ to _____ using **Green Manure Mix**

Milestone	Preparation type	Activity date
Reduce previous crop stubble	Slashing	Feb - Mar
Incorporate stubble	Speed disc	March
Monitor rainfall and soil temperature for weed emergence	Identify target species	April
Terminate weed species	Herbicide (standard mix at recommended rate)	Early - April
Weed incorporation	Heavy disc followed by light disc	Mid - April
NB: Consider working the site more extensively during these better conditions at this point, to reduce pressure during Spring ground prep Sow Green Manure Mix of Grey peas, Tic beans, Lupins, Cereals (50kg/ha)	Ripping, ploughing... Rotary tiler for rough ground (5m pass) particularly headlands Spreader for smoother ground	Mid - April
Incorporate seed mix prior to rainfall event	Light disc at 20mm depth, or rake, consider a light roll for seed soil contact	Late April
Irrigate (if required)	Pivot/Hard hose	
Crop emergence	12 – 15 days approx.	Early May
Crop emergence	Expect lighter due to colder conditions	Mid-May
Monitor growth rates and general status	Expect total emergence	Early June
Monitor growth rates and general status	Expect even coverage	Late June
Do not allow Autumn cover crop to flower	Terminate just below knee height	July
Conversion, plan termination prior to seed set (consider slashing)	Alternatively burn-off, use herbicide at minimum recommended label rates	July
Monitor decomposition rates	Herbicide uptake	On-going
Prepare site for new cash crop (consider direct drill)	Light work down (if required)	During August
Sow new cash crop	As per crop requirements	During Sept



Take home message Autumn Cover Crop “Keep it Simple!!”

- For **NW Tasmanian** conditions...
- Establish by mid April (before Easter)
- Do not let your cover crop set seed (as a guide no taller than knee height)
- Terminate by mid July (School holidays)



Thank you

