SALT TOLERANCE

OF MONTO VETIVER GRASS

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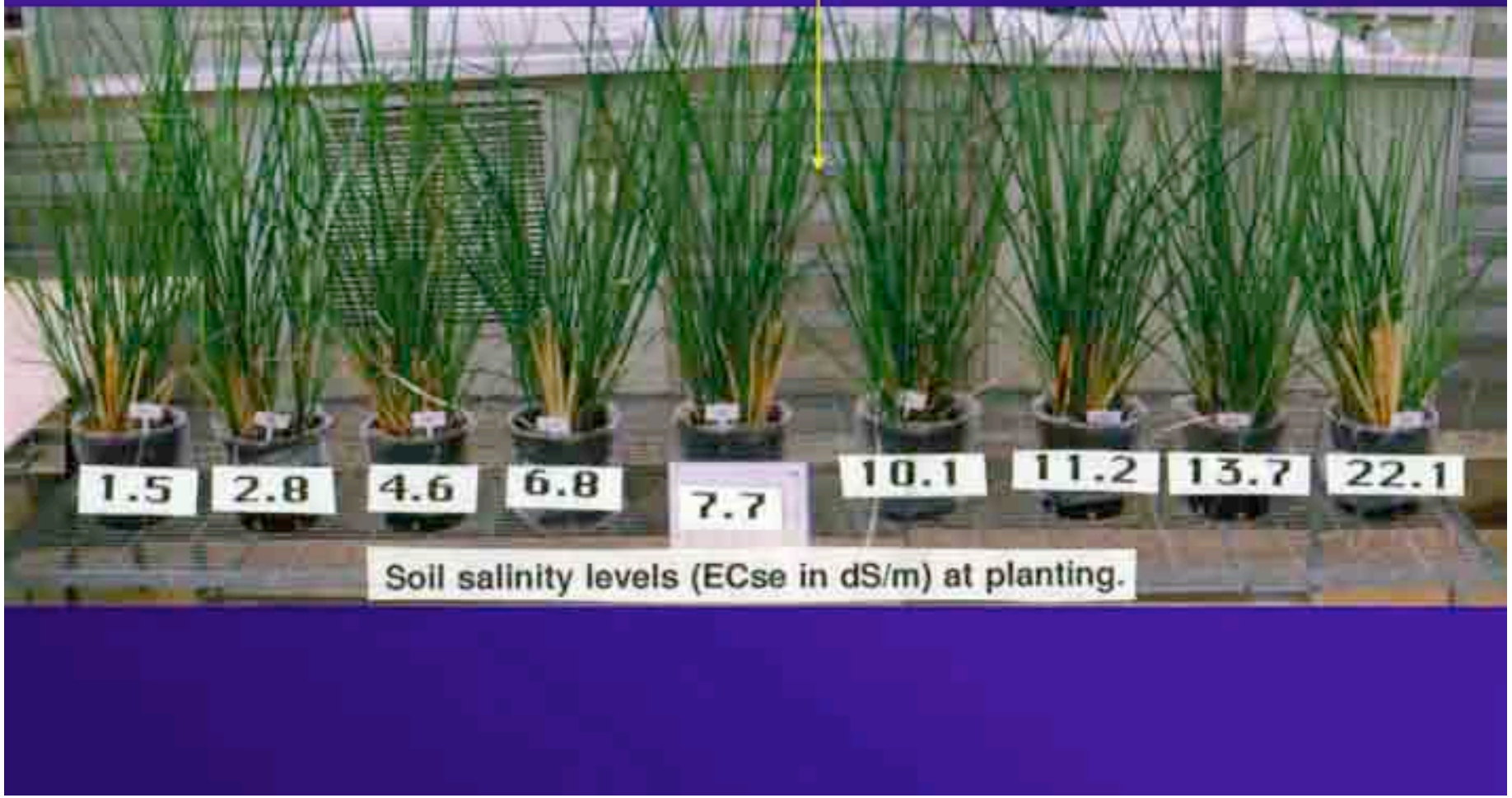
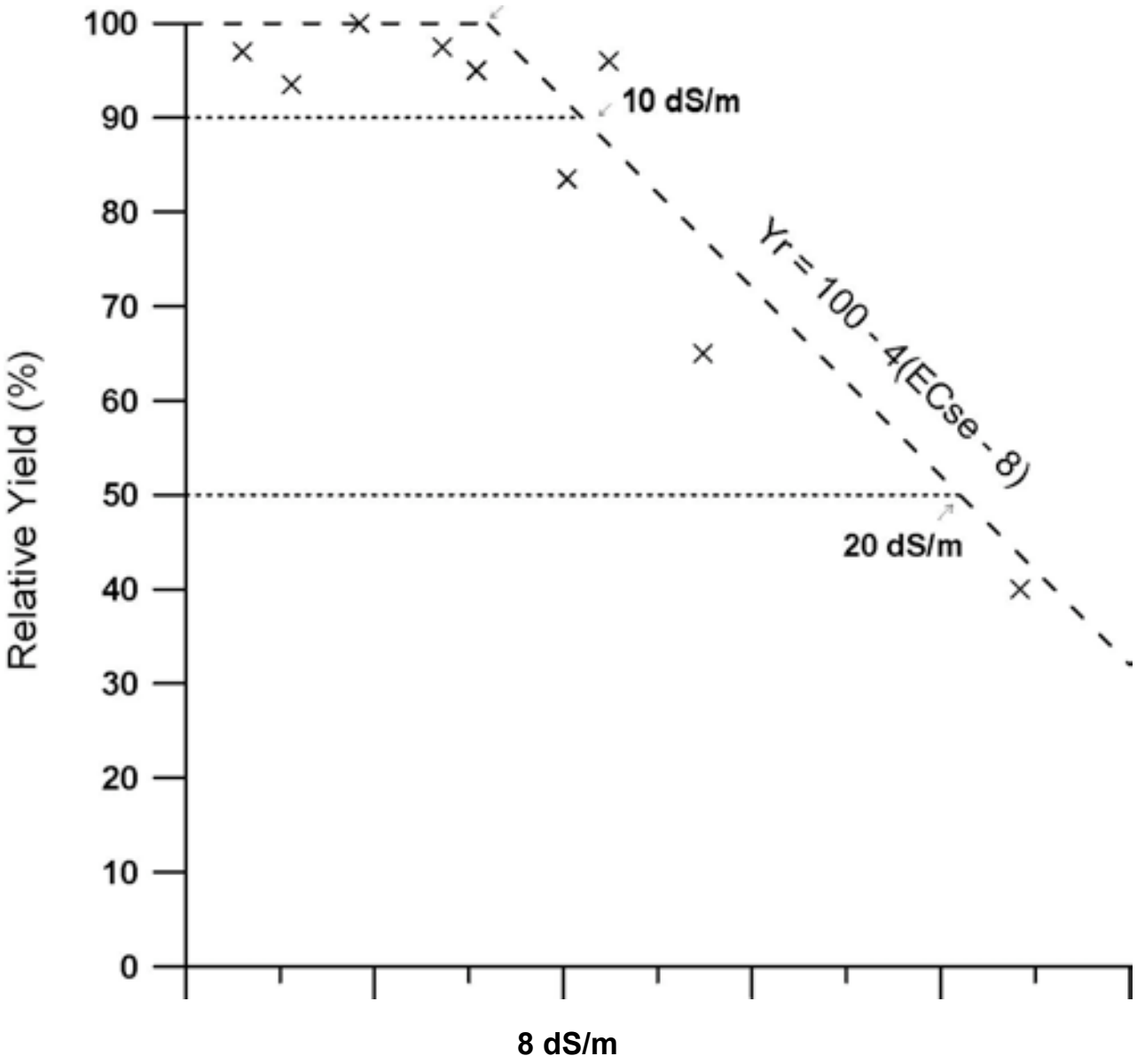
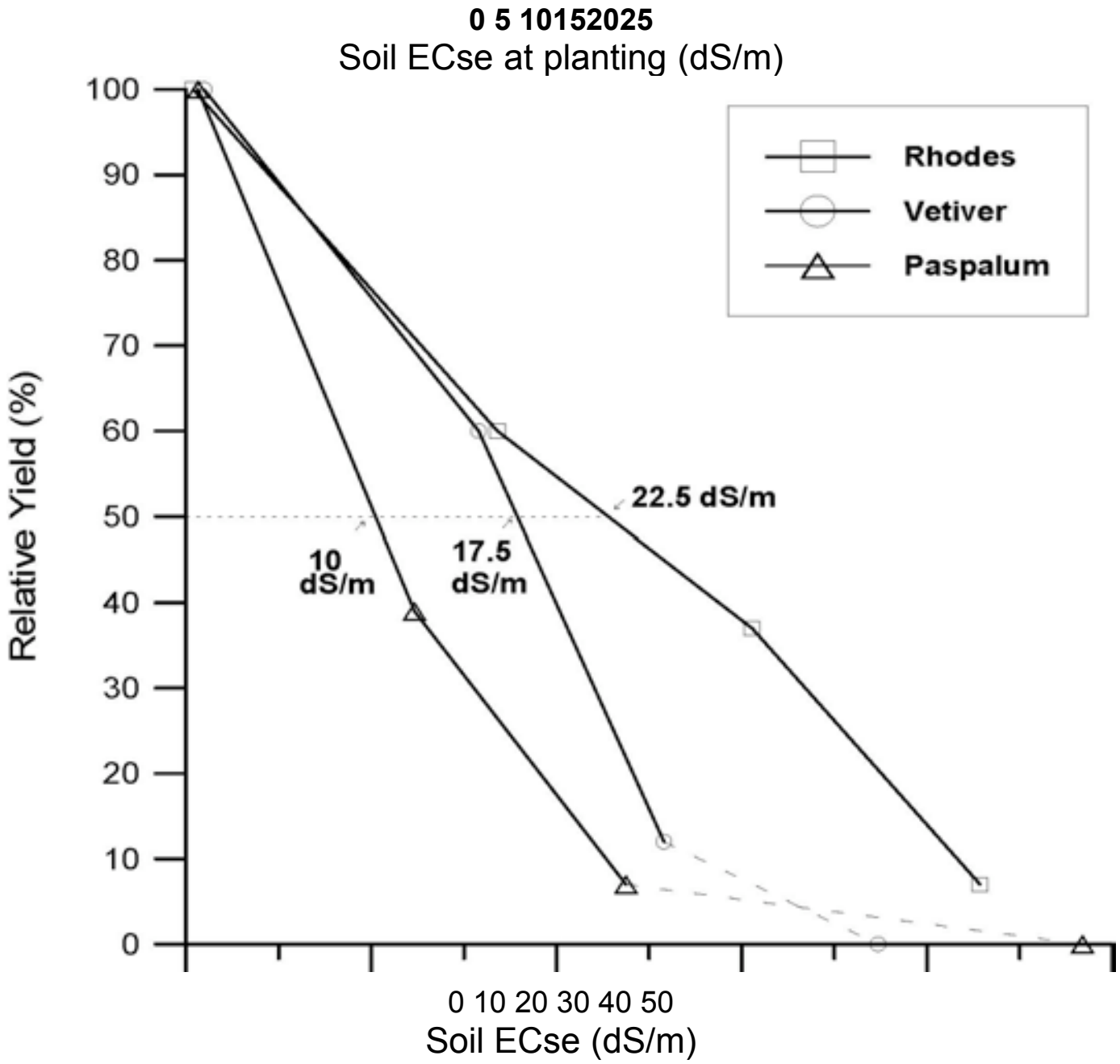
THRESHOLD TEST



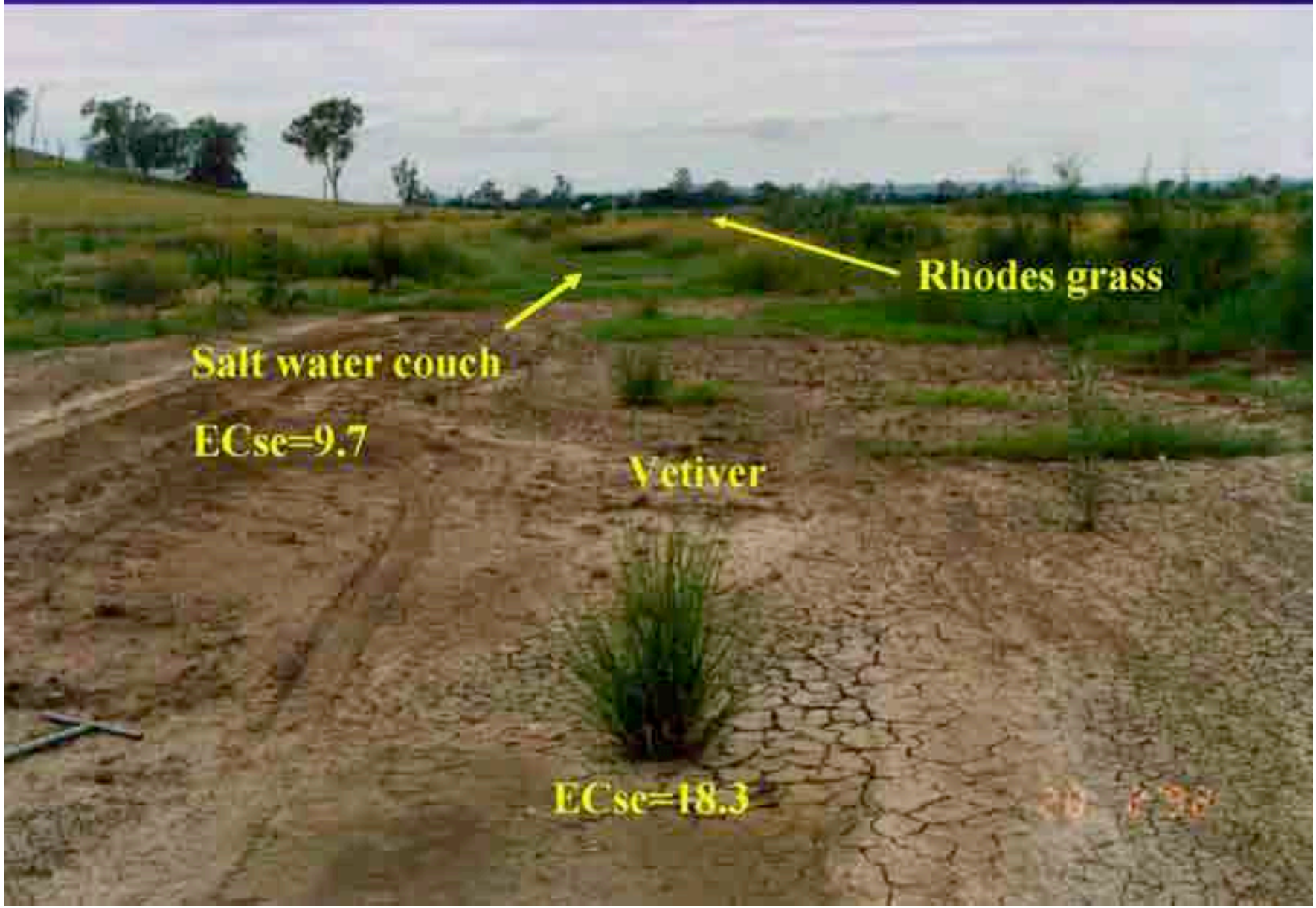
Saline threshold level is at EC_e=8 dsm^{-1}, and vetiver can survive at 47.5 dsm^{-1} under dryland salinity conditions

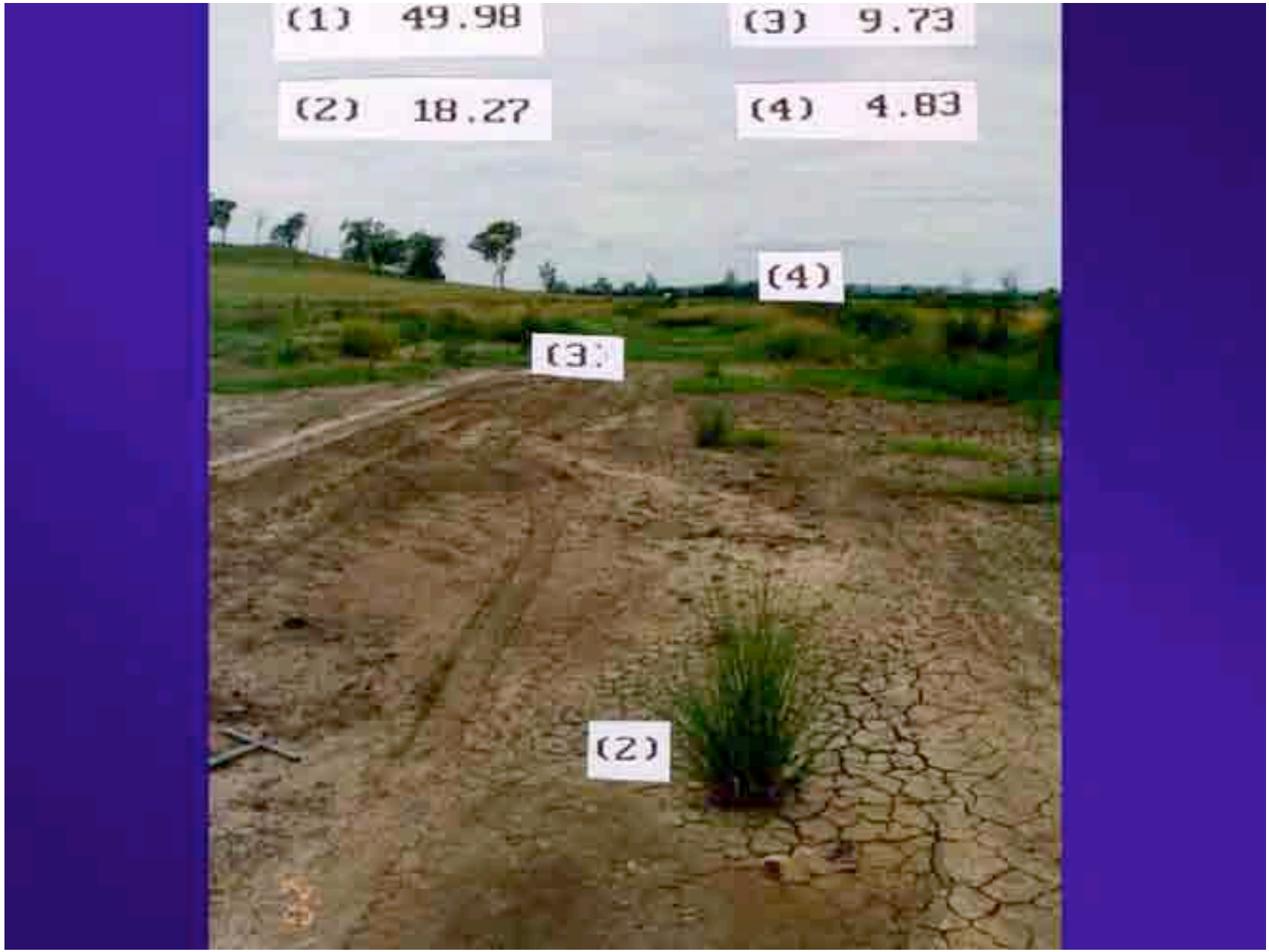
Species	Soil EC_{se} (dSm^{-1})	
	Saline Threshold	50% Yield Reduction
Bermuda Grass *(Cynodon dactylon)*	6.9	14.7
Rhodes Grass (C.V. Pioneer) *(Chloris guyana)*	7.0	22.5
Tall Wheat Grass *(Thynopyron elongatum)*	7.5	19.4
Cotton *(Gossypium hirsutum)*	7.7	17.3
Barley *(Hordeum vulgare)*	8.0	18.0
Vetiver *(Vetiveria zizanioides)*	8.0	20.0


100
90
80
70
60
50
40
30
20
10
0
Relative Yield (%)
10 dS/m
Yr = 100 - 4(ECse - 8)
20 dS/m
8 dS/m


0 5 10152025
Soil ECse at planting (dS/m)
Relative Yield (%)
100
90
80
70
60
50
40
30
20
10
0
Rhodes
Vetiver
Paspalum
22.5 dS/m
10
dS/m
17.5
dS/m
0 10 20 30 40 50
Soil ECse (dS/m)

Vetiver can tolerate almost twice as much salt as salt water couch



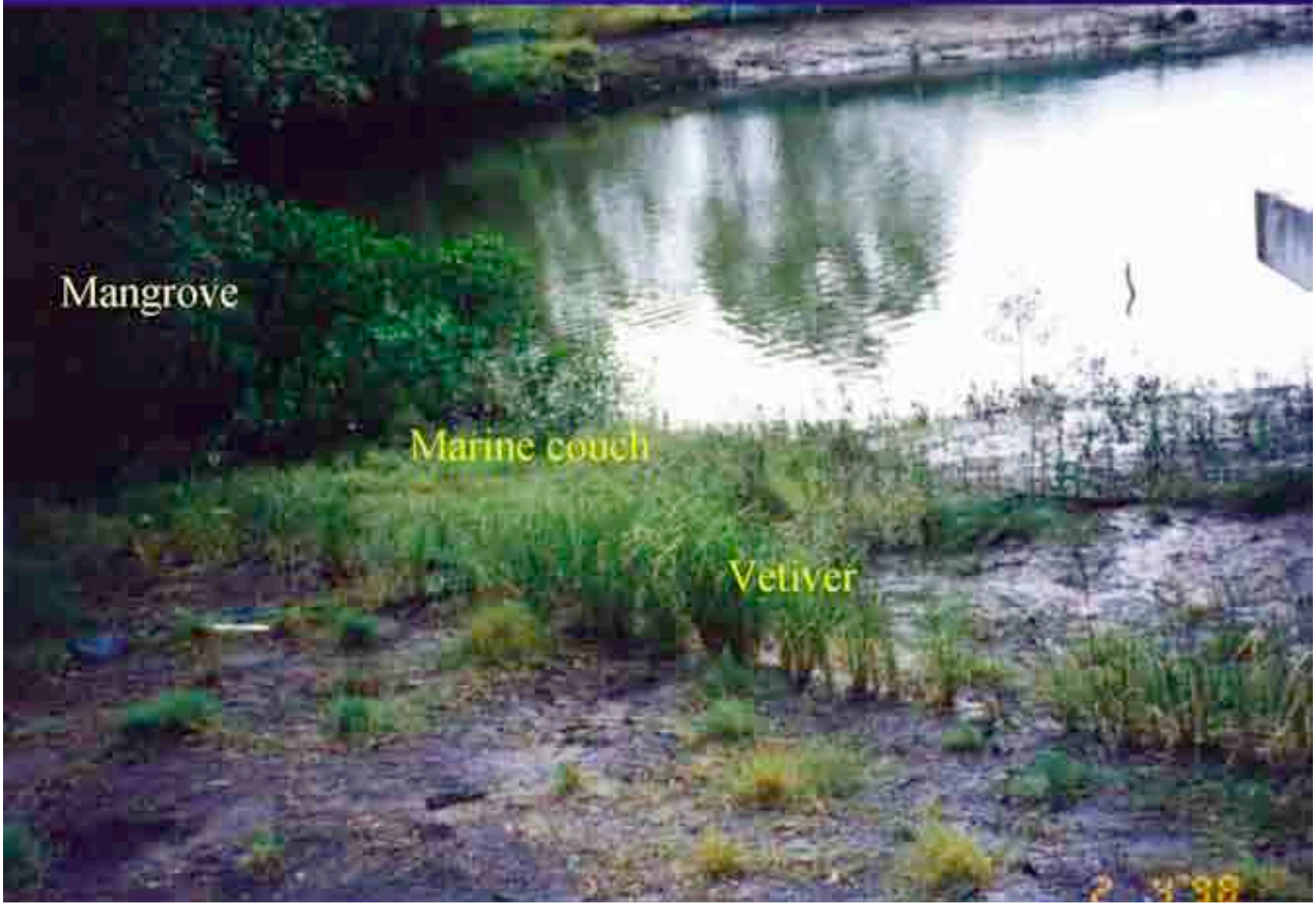

(1) 49.98
(3) 9.73
(2) 18.27
(4) 4.83
(4)
(3)
(2)

Salt profile of soil under vetiver

Vetiver used to lower saline water table at Swan Hill, Victoria

Symptom of saline toxicity under extremely saline conditions .

Planted as filter strip on the mudflat of this sea water tidal creek



Vetiver growing among mangrove seedlings on a tidal Coomera creek


In Fiji vetiver growing next to a mangrove swamp
Mangrove
Vetiver
Mangrove fern
Marine couch

Highly saline Gribble Creek flat in Kalgoorlie

Initial drip irrigation is needed for establishment. Soil ECse = 10 - 46 dSm-1 and pH = 7.1 - 7.7

Vetiver still thrived 4 weeks after planting, but unfortunately the trial was stopped due to vandalism

Shrimp pond stabilisation


Mangrove ferns
Vetiver
10 1 2005


Mangrove ferns
10 1 2005

Tidal estuary

Tidal estuary