



Industry &
Investment

Perennial Wheat Evaluation

Cowra Agricultural Research & Advisory Station



FUTURE FARM
INDUSTRIES CRC
PROFITABLE PERENNIALS FOR AUSTRALIAN LANDSCAPES

Matthew Newell – Primary Industries – 22nd Sep Cowra

Two sites in contrasting environments 2009



Cowra Row Nursery

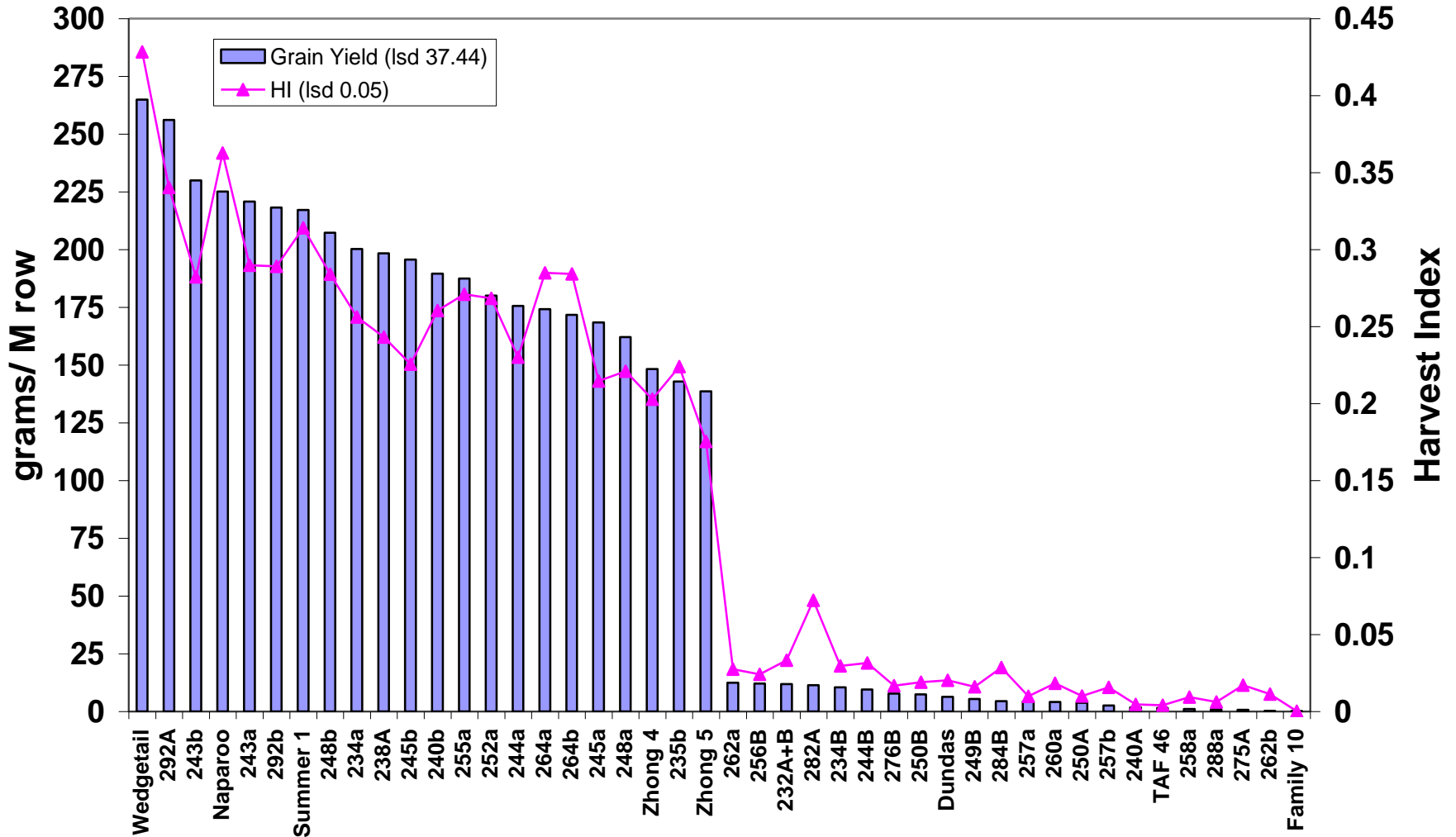


Woodstock Plot Study



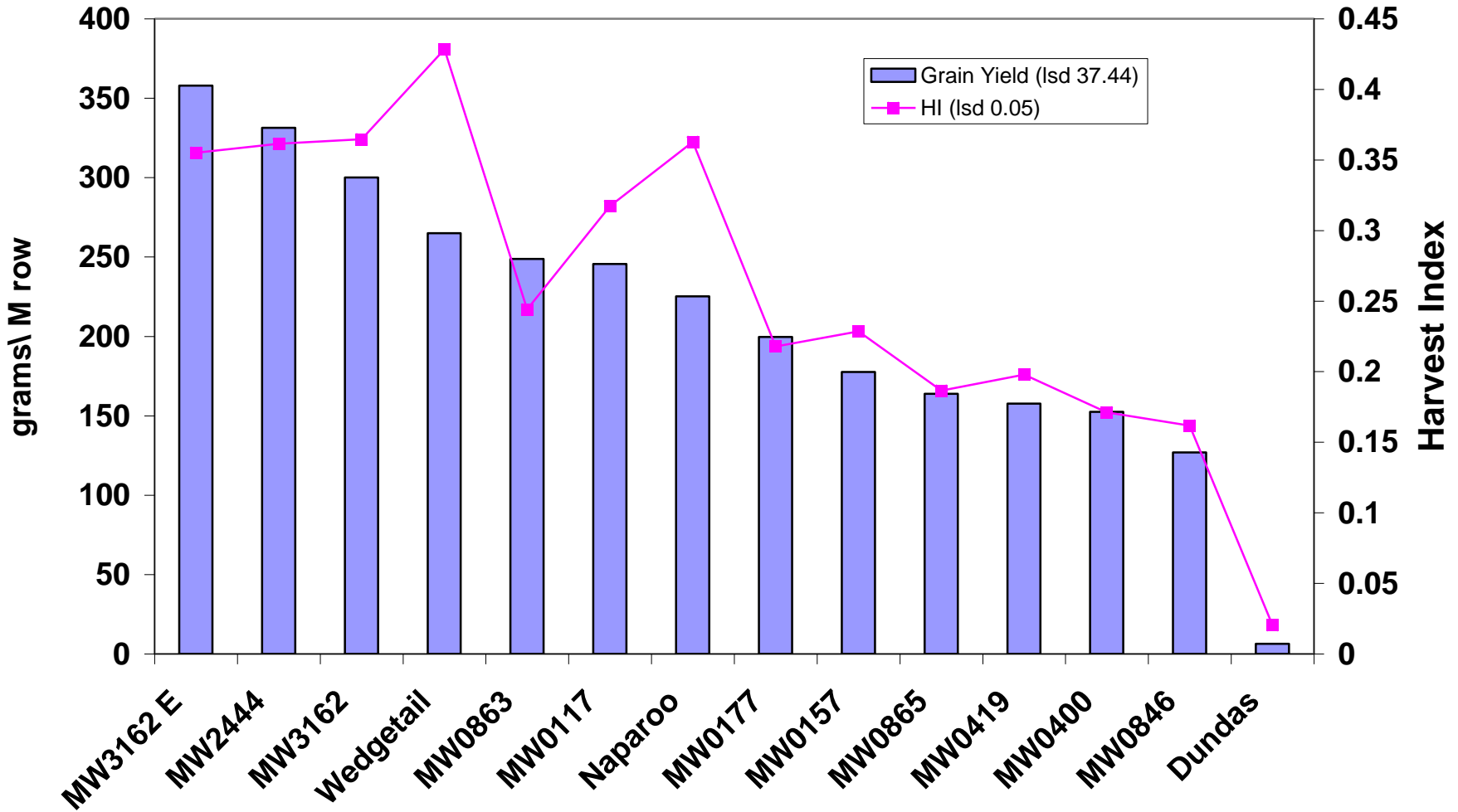
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Cowra Nursery 2009 Grain Yield

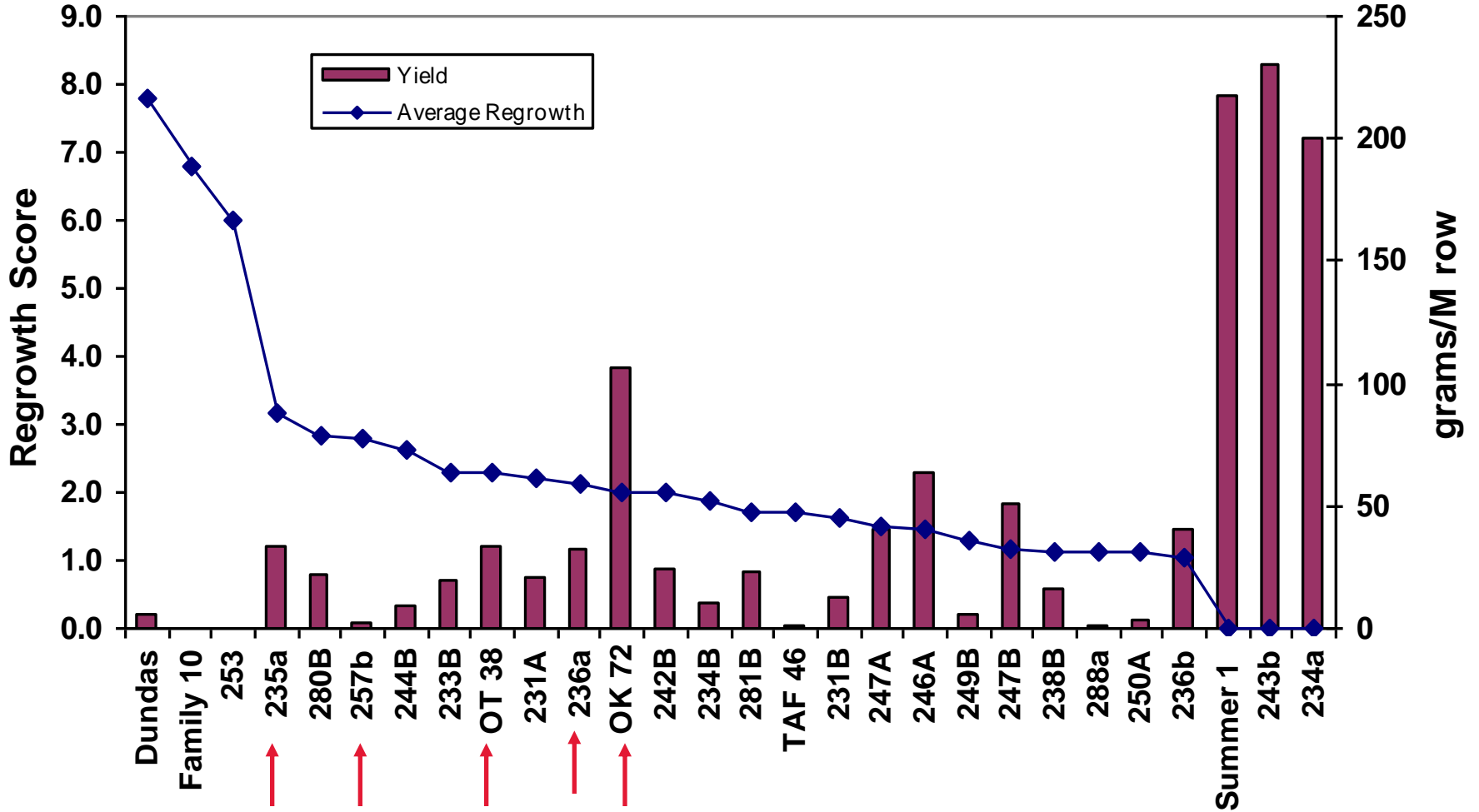


Mega Wheats Cowra 2009

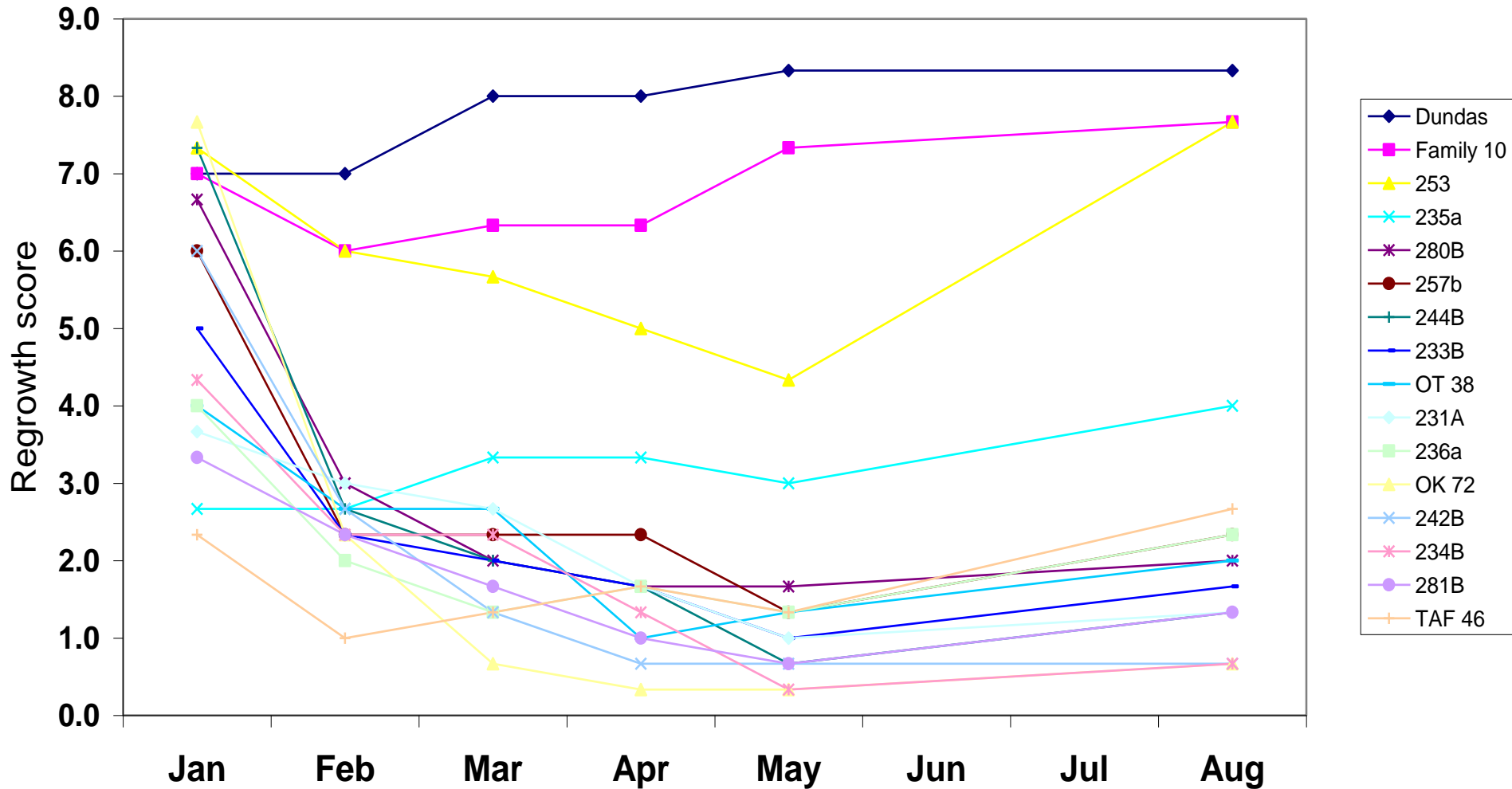
Grain Yield



Cowra Nursery Regrowth/ GrainYield



Cowra Nursery 2009 Regrowth 2010



Entry	1st year harvest Dec 09 (grams)	2nd year harvest Apr 10 (grams)	No. Reps harvested year 2	No. Reps still surviving
OK 72	106.94	5.04	3	1
235a	33.61	4.27	2	2
247B	51.25	2.40	2	2
281B	22.75	1.74	3	2
280B	20.98	0.90	3	2
231A	21.31	0.88	1	1
246A	63.50	0.75	2	1
279A	34.28	0.70	1	1
236a	32.12	0.48	1	1
257b	2.57	0.41	3	3
251a	17.61	0.25	1	0
264a	174.19	0.18	1	1
258B	15.16	0.11	2	1
233a	27.80	0.10	1	0
242B	24.33	0.03	3	2
227A+B	33.81	0.02	2	0
276A	14.84	0.00	1	0
276B	7.13	0.00	2	0
280A	16.02	0.00	1	0
281A	27.47	0.00	1	0
288a	0.89	0.00	2	2
O-38	33.77	0.00	2	2





235a April-10



Elymus multiflorus April-10

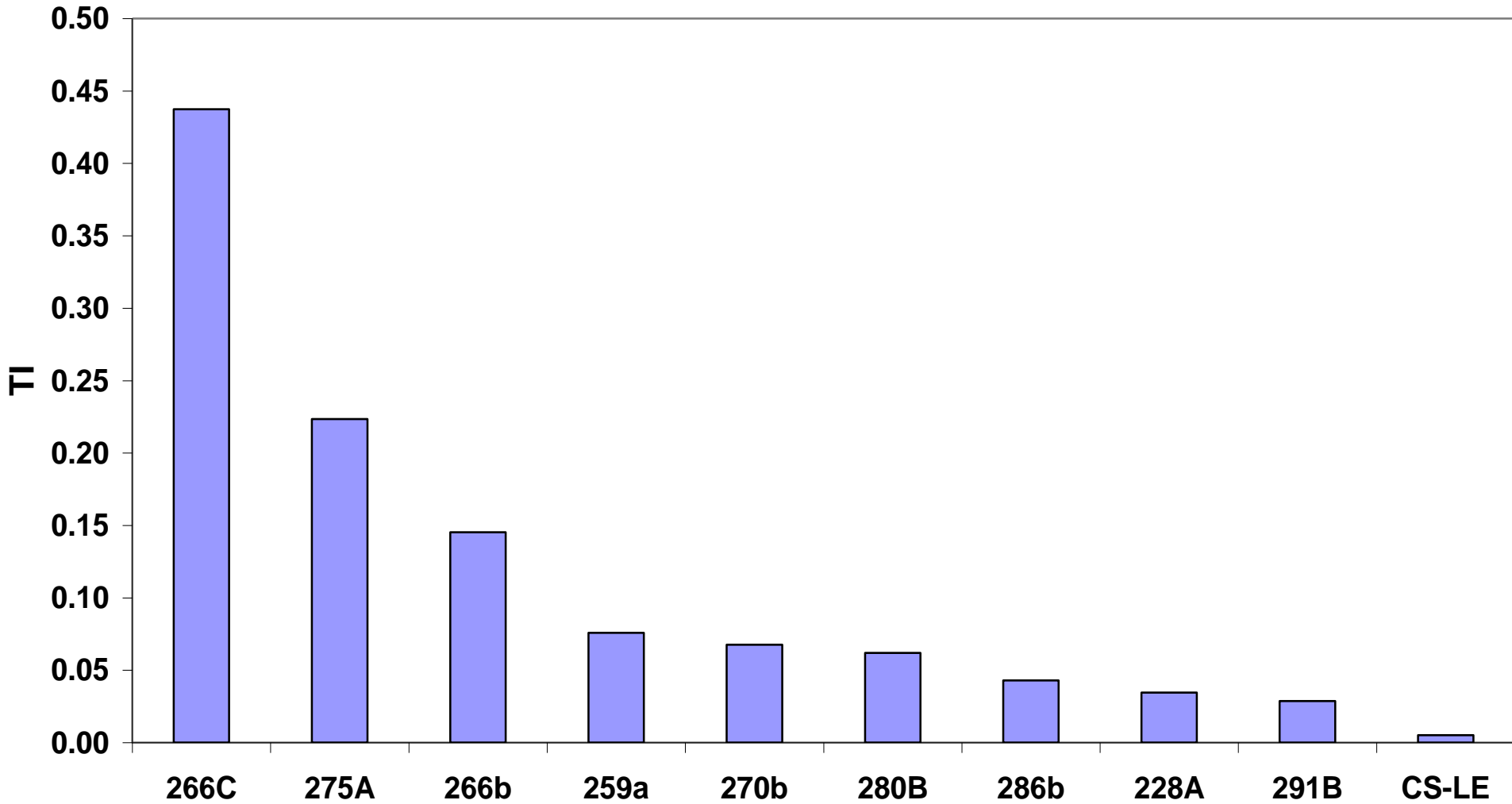


Dundas April-10



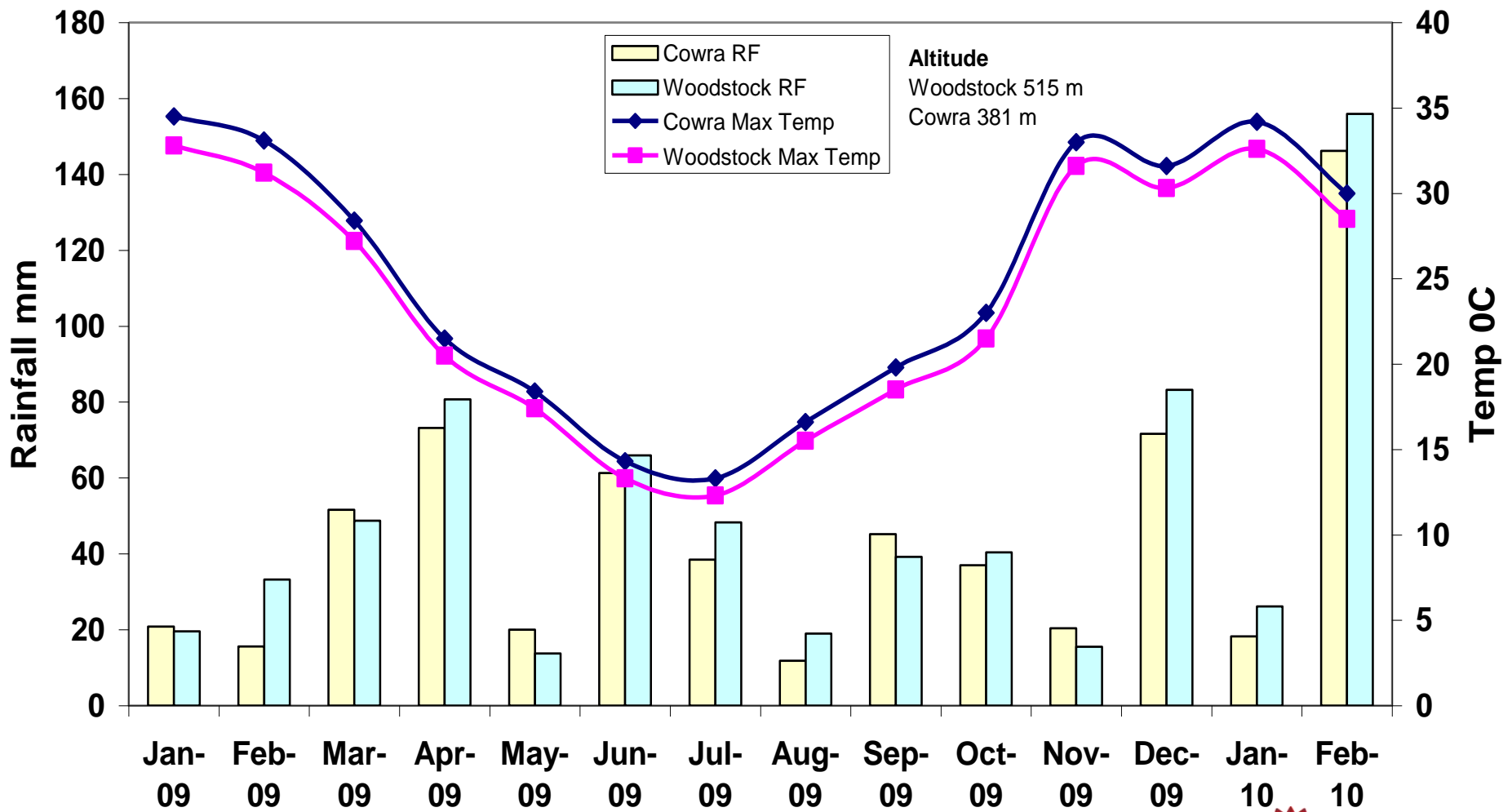
268b (Tenacious Glumes)

Cowra Nursery 2009 Threshability Index



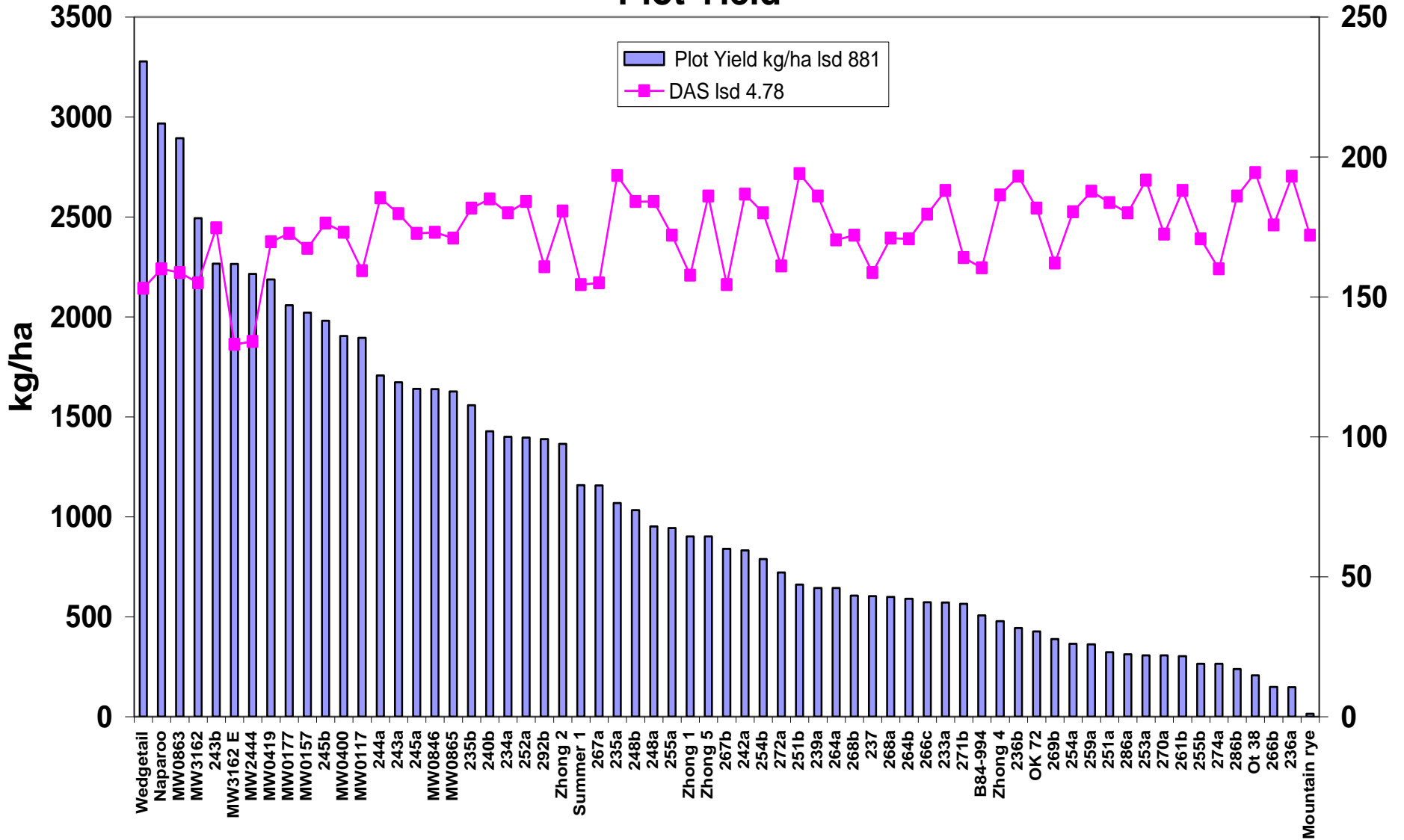


Monthly Averages Cowra/ Woodstock 2009



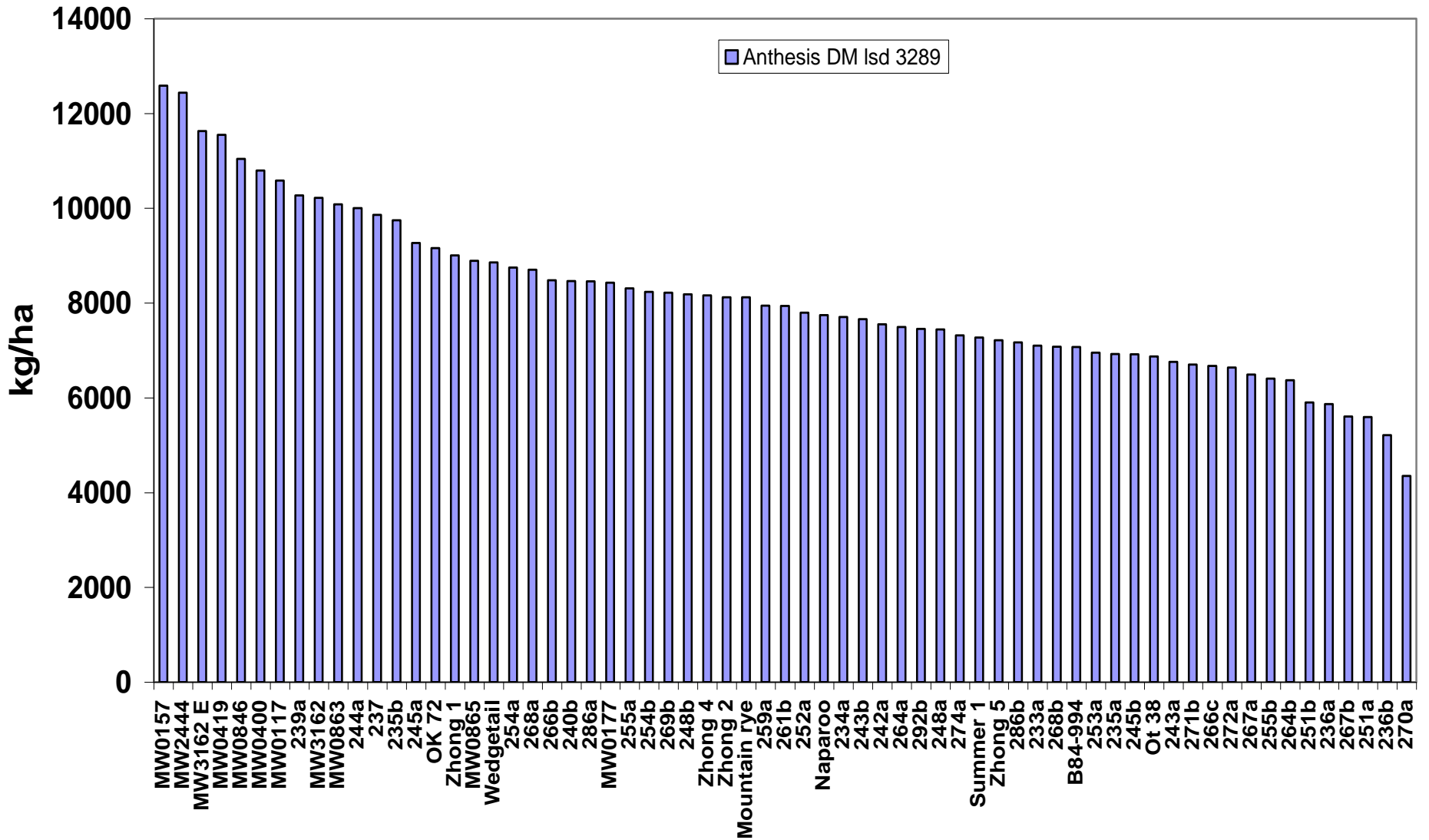
Woodstock 09

Plot Yield

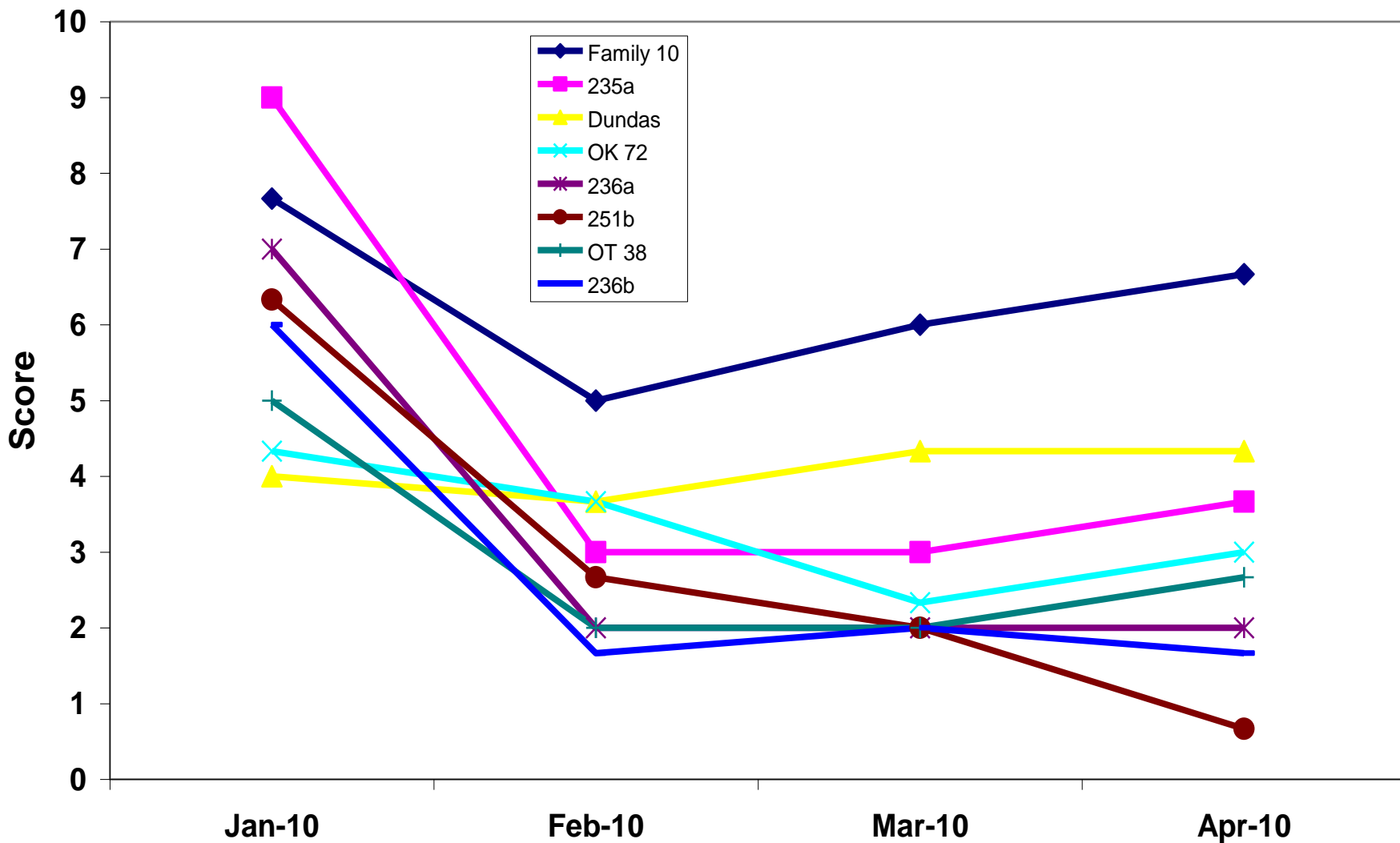


Woodstock 09

Anthesis Dry Matter



Woodstock 09 Regrowth Scores



Summary

- Other measurements taken

Awns

Plant Height

Grain Colour

Tillering

- Material appears to biennial as evident in the rapid decline in regrowth scores between year2 and year3
- Woodstock site may give us some indication on the role of environment in expressing perenniality. 11 varieties showed some sign of regrowth at Woodstock but not Cowra
- 2010 Row nursery site at Cowra containing:
 - 14 selections from Intermediate Wheatgrass new from quarantine
 - 39 perennial accessions held at the Cereal Collections Unit
 - Most promising lines from 2009 nursery
- Woodstock Plot study: more promising lines plus others that were not there last year





OT 38 Jan-09



OT 38 May-10



236a Jan-09



236a May-10

Masters Study

- Developing perennial grains from Australian perennial grasses
- Number of Triticeae grasses endemic to Australia
 - ***Elymus scaber* var. *scaber***. (Common Wheatgrass): Wide distribution in NSW from coastal to inland environments. Very common in all southern states of Australia.
 - ***Elymus multiflorus*** (Phillip Island Wheatgrass): Distribution limited to coastal areas.
 - ***Elytrigia repens*** (English Couch): Introduced but common in most parts of NSW. Has been used in wheatgrass improvement programs in the past.
 - ***Australopyrum pectinatum***: Generally found on black soil plains at higher altitudes of the northern and southern tablelands.
 - ***Australopyrum retrofractem***: Found in alpine regions in southern Australia.
 - ***Australopyrum velutinum***: Grows in high altitude forests and grasslands.

have twisted leaves



Mature seedhead: L McWhirter



Auricles: H Rose

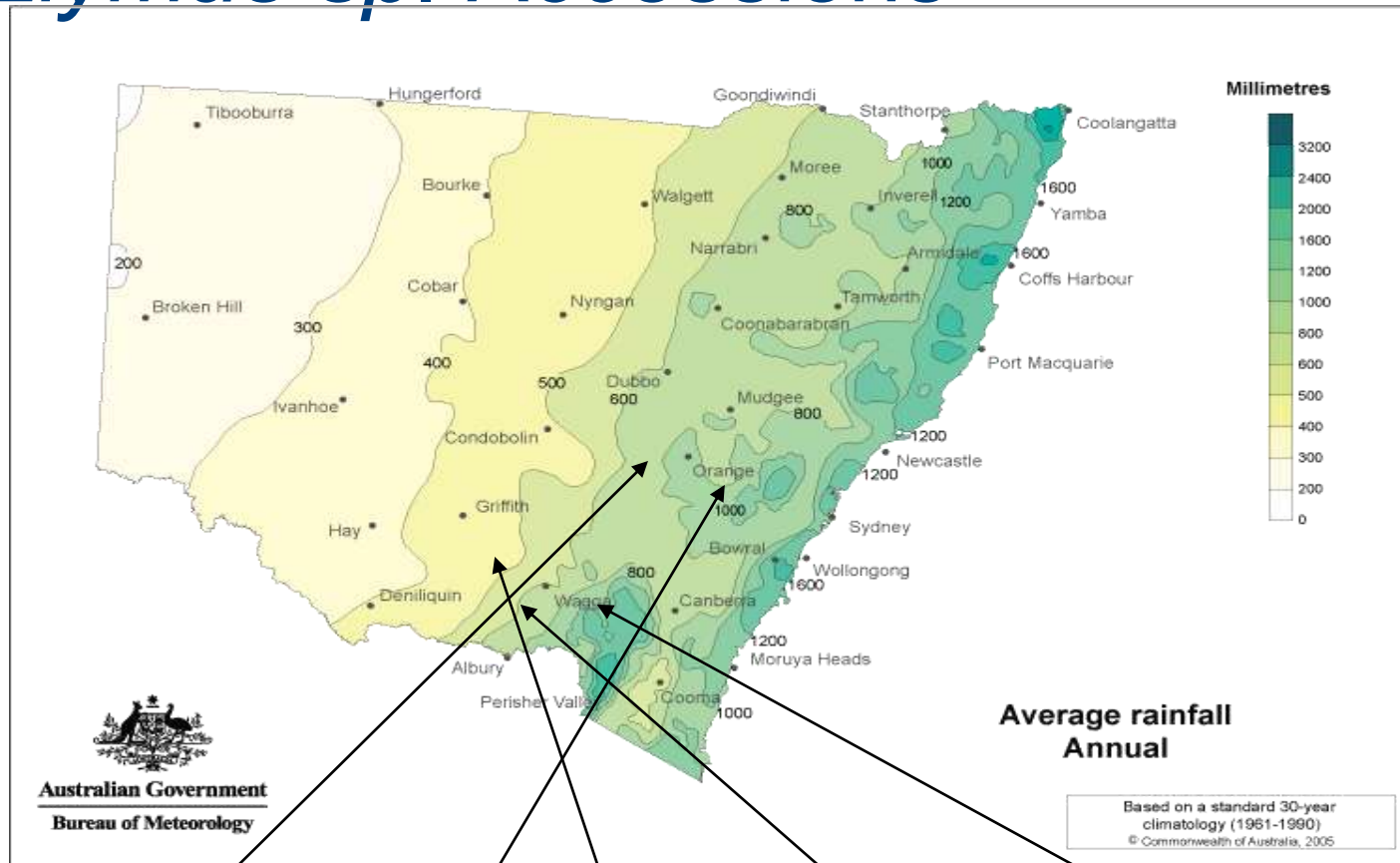


Twisted leaf: L McWhirter



Wheatgrass habit: L McWhirter

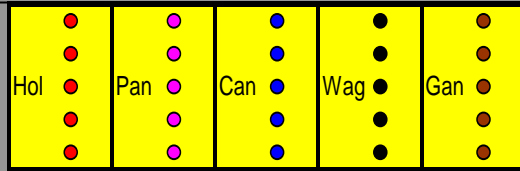
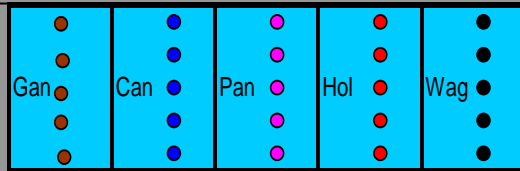
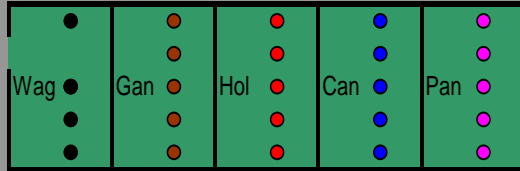
Location and annual rainfall information for *Elymus sp.* Accessions



Canowindra Annual RF 598mm Elevation 435 M	Panuara Annual RF 987mm Elevation 781M	Ganmain Annual RF 461mm Elevation 194 M	Holbrook Annual RF 694mm Elevation 380 M	Wagga Wagga Annual RF 519 mm Elevation 219 M
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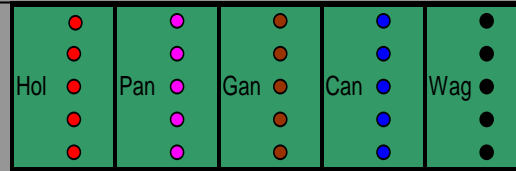
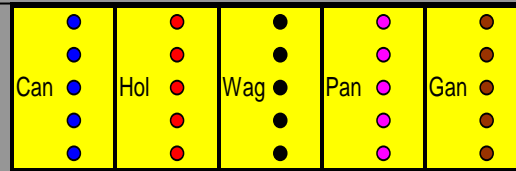
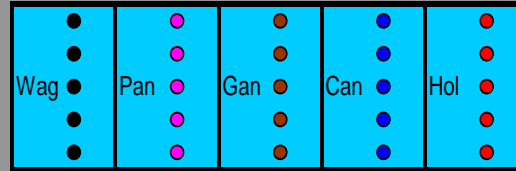
Physiology Trial Layout

Rep 1

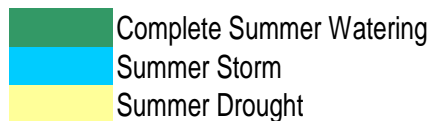
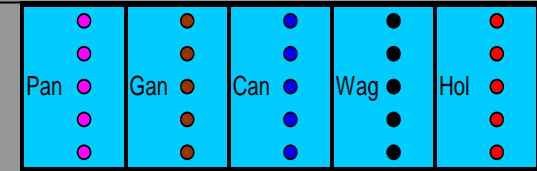
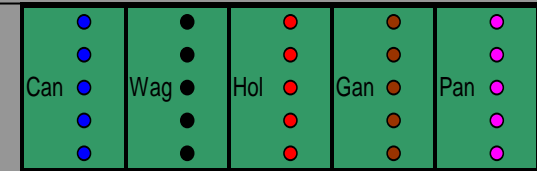
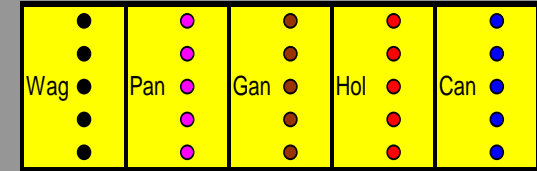


Rep 2

Buffer (Fescue clover mix?)



Rep 3



Summer survival strategy

Basic measures on phenology, growth, fertility and seed yield



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