B3 Sowing Time x Variety x Plant population, H-MRZ (Wagga Wagga), New South Wales

Aim

To test the yield response of six faba bean varieties across 4 different sowing times and two targeted plant populations in southern NSW. The information from this trial will be used to improve current grower sowing time recommendations, variety selections and targeted plant population at each sowing time.

Treatments

Varieties:	Farah, Nura, AFO3063, AFO3001, AFO3029, 974*(611*974)/15.
Sowing dates:	6th April (Early), 29th April, 28th May, 16th June (late).
Plant populations:	Targeted 20 & 35 plants/m^2.
Row Spacing/Stubble:	30cm into standing light stubble.
Fertiliser:	Legume Starter @ 115kg/ha at sowing.

Results and Interpretation

- Grain yields - The effects of variety, time of sowing, and plant population as single factors were found to be significant (*P<0.005*). There also was a significant interaction of variety x time of sowing, and sowing time x plant population detected All other interactions were found not significant.

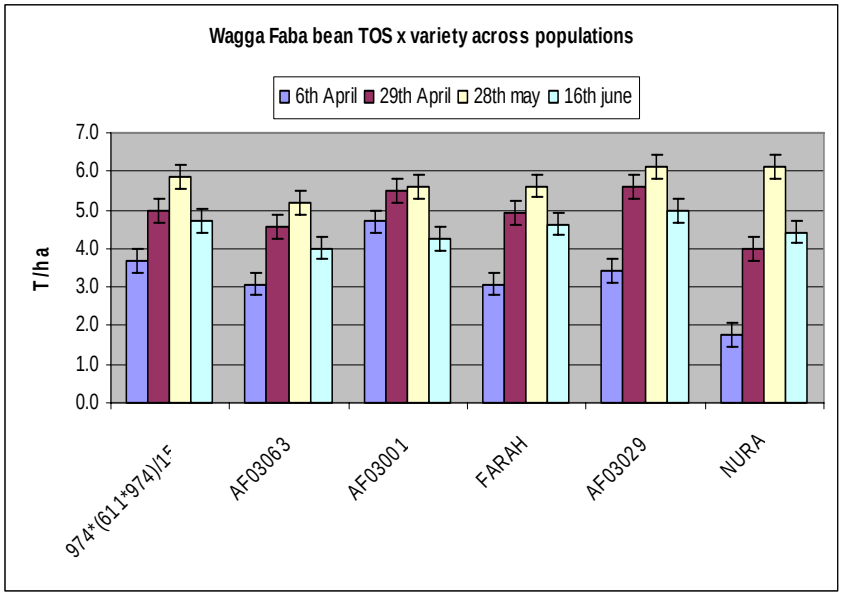

Figure B3.1. The interaction effect of genotype and sowing date on grain yield (t/ha) of faba beans at Wagga in 2010.

- As can be seen from above, there was a significant yield penalty across all treatments from early sowing (6th April). This yield penalty is associated with increased disease pressure (despite regular fungicide applications), large plant biomass and early plant lodging. Some treatments began lodging as early as 9th September in the 6th April planting. This early lodging also increased the disease pressure as spray fungicides were unable to fully penetrate the plant canopy. Sowing date 28th May was optimum in terms of yield and lodging at this site in 2010 . The first 2 sowing dates suffered severe lodging and caused massive yield loses. However, the 29th April sowing date was able to return higher yields than the 6th April sowing date because there was less disease and lodging occurred much later.

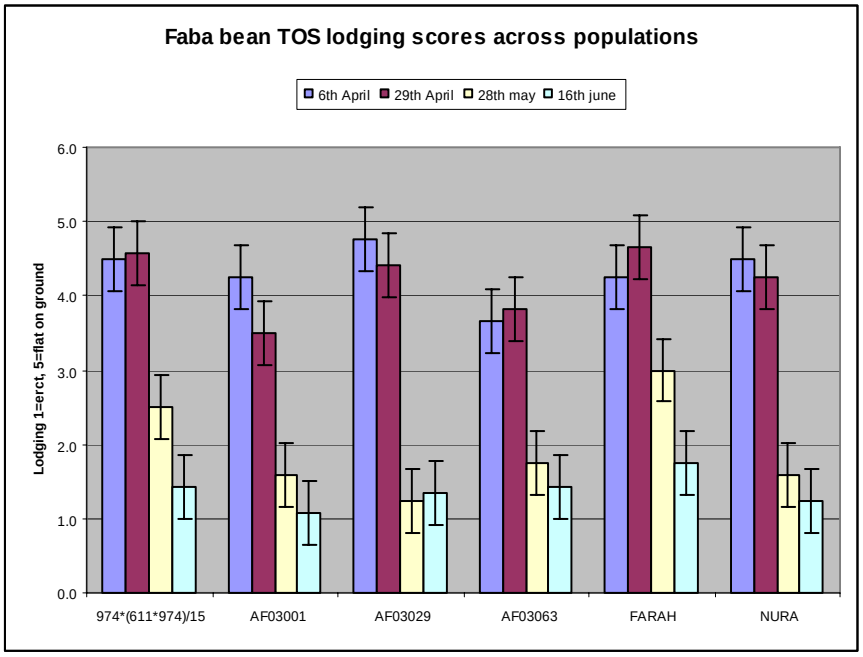

Figure B3.2. The interaction effect of genotype and sowing date on lodging of faba beans at Wagga in 2010.

From this data, it is clear that a late April to late May is the optimum planting time for faba beans in a season like 2010. Sowing early increases the instance of disease and early crop lodging.

- Grain Weight - The effects of variety and time of sowing as single factors were found to be significant ($P<0.005$). There also was a significant interaction of variety x time of sowing detected All other interactions were found not significant. The grain weight result is very similar to the grain yield result. This is of no surprise as seed size is a major driving to grain yield (within a variety). Early lodging and increased disease pressure (induced by early lodging) reduced seed size significantly across all treatments. Generally 2nd & 3rd sowing dates did not differ and the mid June was significantly lower (as were grain yields).

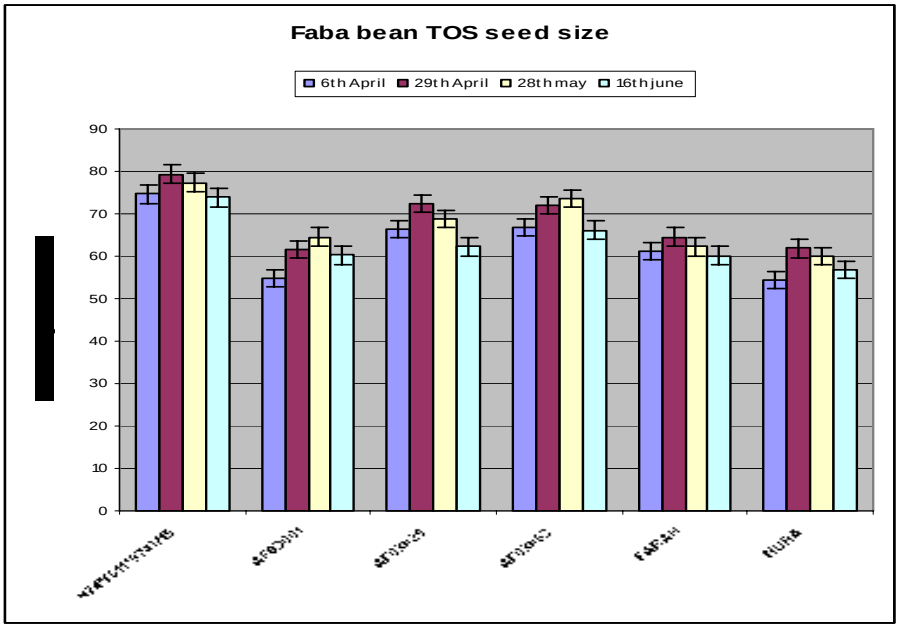

Figure B3.3. The interaction effect of genotype and sowing date on grain weight of faba beans at Wagga in 2010.