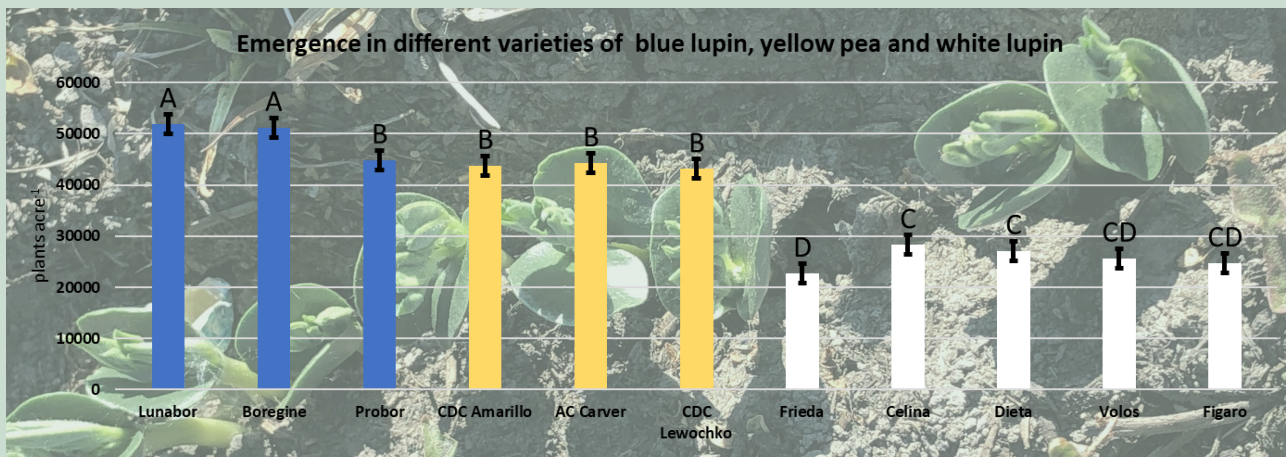


LUPIN

Highlights

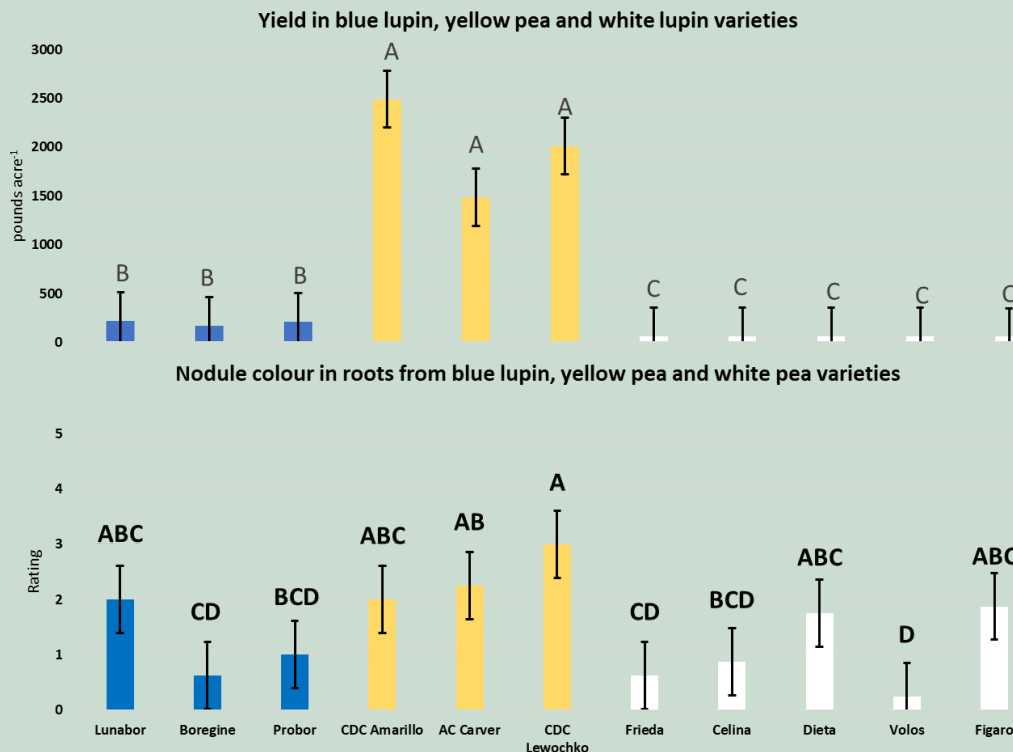
- Eight varieties
 - Three varieties of blue
 - Five varieties of white
 - Three varieties of yellow pea for comparison
- Emergence was greater in blue lupin.
- Blue lupin stand number was 34% greater than yellow pea varieties ($P < 0.0001$) and 47% greater than white lupin varieties
- Yield varied across plant species
 - Yellow peas produced more yield, followed by white lupin and blue lupin showing the lowest yield.
- Presence of strong pink nodules in roots denotes greater nitrogen fixation.
 - Yellow pea varieties were 4 points higher in rating than blue lupin varieties and 1 point higher than white lupin varieties.



Lupins were grown at NPARA as a variety trial with three yellow pea varieties for comparison. There were some incidences of sclerotinia in the blue lupin varieties. These were ameliorated with Bravo (Chlorothalonil) fungicide. Moreover, there were also incidences of stink bugs on the trial on both blue and white lupin varieties; numbers of individual insects were very low and little damage was reported. Despite fungicide control and low numbers of stink bugs found, it is possible both effects may have impacted yield and test weight. Emergence was monitored on June 10, June 24 and July 5 in lupin and yellow pea stands. In general, there were more emergent stands in blue lupin varieties of Lunabor and Boregine ($P < 0.0001$) compared to white lupin varieties of Volos, Figaro, and Frieda. Probor blue lupin had the same emergent numbers as all yellow pea varieties (CDC Amarillo, AC Carver, and CDC Lewochko). Indeed, Blue lupin stand number was 34% greater than yellow pea varieties ($P < 0.0001$) and 47% greater than white lupin varieties ($P < 0.0001$); yellow pea emergent stands were 41% greater than white lupin varieties ($P < 0.0001$).

LUPIN

Yield did not vary among varieties but among plant species. Yellow pea varieties were yielding more compared to blue and white lupin ($P < 0.0001$). As such, yield from yellow pea was 90% greater than blue lupin yield ($P < 0.0001$), and 23% greater than white lupin ($P < 0.0001$). Blue lupin combined yields on the other hand, was 32% more than white lupin yields ($P < 0.0001$). Yellow pea test weight was greater by 1% than both blue ($P < 0.0001$) and white lupin ($P < 0.0001$). Test weight was greater in blue lupin by 3% compared to that of white lupin ($P < 0.0001$).



Nodulation was conducted through visual assessments. Growth and vigour, nodule colour as well as position were assessed through a point system (one through five, zero through five and one to three for each respectively). Statistical analysis was run for each of these parameters as well as total number of visual assessment points. Growth and vigour ($P = 0.2855$), position ($P = 0.7592$) and total point number ($P = 0.7592$) were statistically the same among all varieties of lupin and yellow pea. Nodule colour ratings ($P = 0.0074$) varied across varieties and plant species. As such, overall yellow pea varieties were 4 points higher in rating than blue lupin varieties ($P = 0.0057$) and 1 point higher than white lupin varieties ($P = 0.0007$). Pink in nodules denote presence of leghemoglobin, which is necessary for nitrogen fixation. The stronger this color shows more nitrogen fixation from legume individuals compared to white, green or brown which are not regarded as effective. In conclusion, has strong emergence once the season starts but yield was poor despite proper weed and pathogen management strategies. It is possible that a stricter plan of weed management may encourage more yield.

