

## **Australian Mungbean Association Hermitage Field Walk - 4 April 2019**

### **Managing bruchids in stored mungbeans - update on research by Queensland Department of Agriculture and Fisheries**

#### **Objective:**

Research, development and extension to address knowledge gaps in pulse storage enabling the development of best management practices (BMP) for stored pulses, ensuring the delivery of high quality pulses to market.

#### **Key activities:**

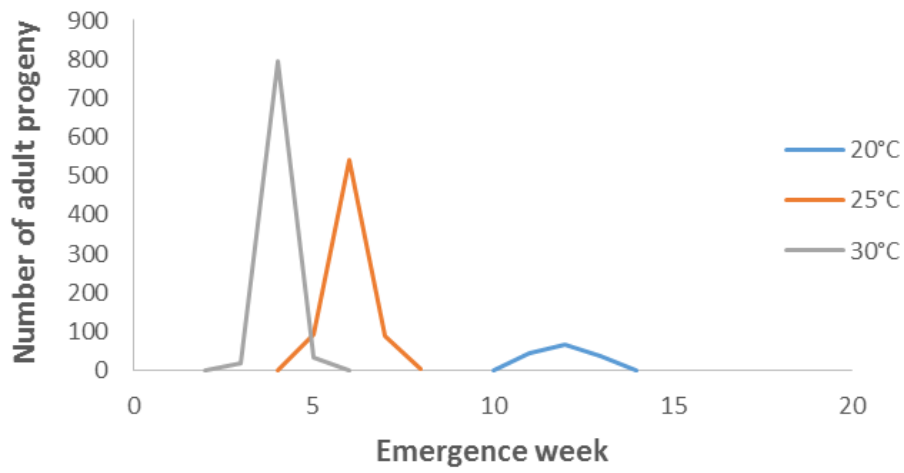
Aeration cooling, phosphine fumigation and best management practice manual.

#### **Aeration cooling**

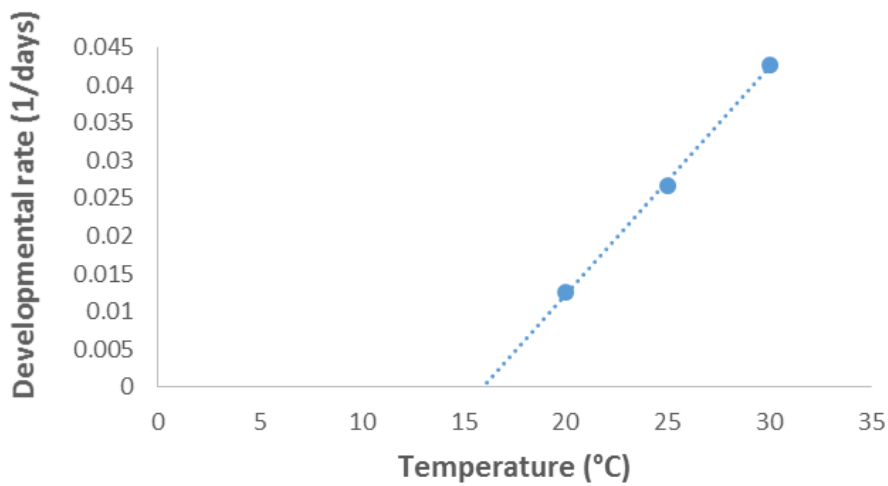
- Laboratory research to identify target temperature for aeration cooling
  - Cooling has big impact on generation time and number of progeny (see Figure 1)
  - Tentative target of 15°C based on results to date (see Figure 2)
- Field research to confirm whether target temperature can be achieved in practice
  - First trial starting in April 2019 at Hermitage Research Facility with more planned

#### **Phosphine fumigation**

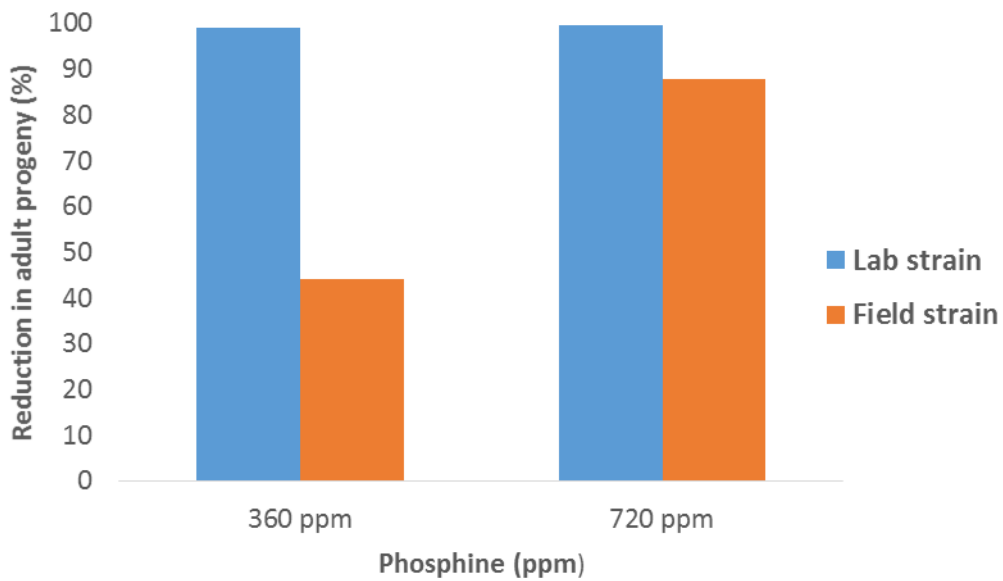
- Laboratory research to identify effective concentration × time combinations
  - Efficacy affected by concentration and time (see Figures 4 & 5)
  - Efficacy affected by bruchid strain (see Figures 4 & 5)
- Field research to confirm whether target temperature can be achieved in practice
  - First trial starting in April 2019 with more planned



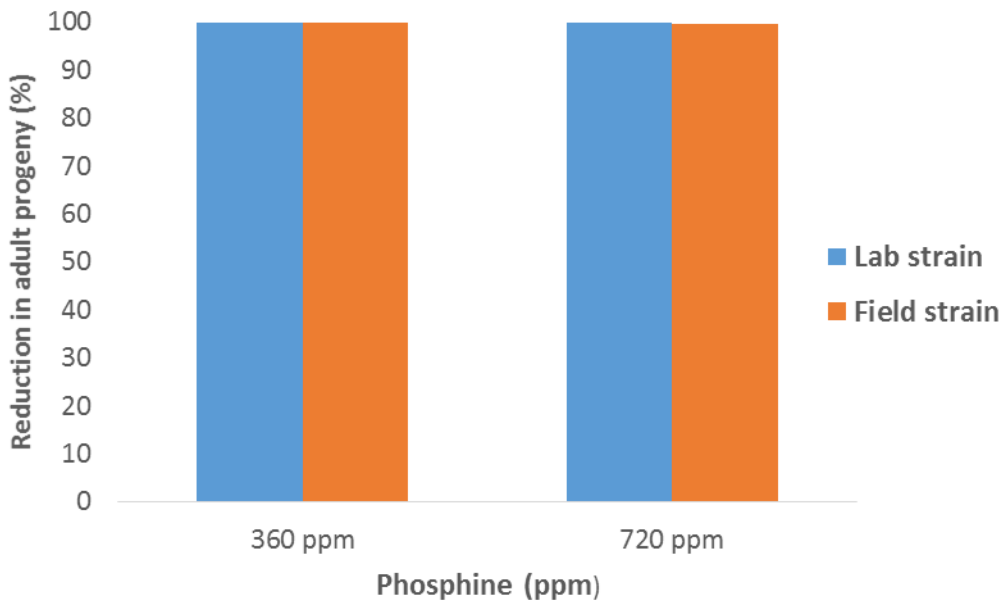
**Figure 1:** Emergence of adult progeny at different temperatures



**Figure 2:** Estimating developmental zero (Using inverse of average emergence time)



**Figure 3:** 3 day lab fumigation (25°C).  
 (Data on adult emergence during 6 weeks post-fumigation)



**Figure 4:** 7 day lab fumigation (25°C).  
 (Data on adult emergence during 6 weeks post-fumigation)