

FINAL REPORT

Future NIPI forums: towards more sustainable pest management practices

PROJECT DETAILS

PROJECT CODE: CSE00058

PROJECT TITLE: FUTURE NIPI FORUMS: TOWARDS MORE SUSTAINABLE PEST MANAGEMENT PRACTICES

START DATE: 30.06.2014

END DATE: 29.06.2017

SUPERVISOR: SARINA MACFADYEN

ORGANISATION: CSIRO

CONTACT NAME: SARINA MACFADYEN

Summary

The Future National Invertebrate Pest Initiative (NIPI) forums were a vehicle for maintaining the existing NIPI network as an active collaborative community of practice that improves research outcomes and their delivery to industry, capacity to respond to emerging pest issues, and the identification and removal of barriers to the adoption of integrated pest management (IPM). The aim was to facilitate communication and collaboration between researchers and extension specialists who are employed across a range of organisations throughout Australia. This was carried out by conducting three forums on diverse topics and engaging the NIPI community in these forums.

Report Disclaimer

This document has been prepared in good faith on the basis of information available at the date of publication without any independent verification. Grains Research & Development Corporation (GRDC) does not guarantee or warrant the accuracy, reliability, completeness or currency of the information in this publication nor its usefulness in achieving any purpose. Readers are responsible for assessing the relevance and accuracy of the content of this publication. GRDC will not be liable for any loss, damage, cost or expense incurred or arising by reason of any person using or relying on information in this publication. Products may be identified by proprietary or trade names to help readers identify particular types of products but this is not, and is not intended to be, an endorsement or recommendation of any product or manufacturer referred to.

Other products may perform as well or better than those specifically referred to. Check www.apvma.gov.au and select product registrations listed in PUBCRIS for current information relating to product registration.

Copyright

Grains Research and Development Corporation. This publication is copyright. Apart from any use as permitted under the Copyright Act 1968, no part may be reproduced in any form without written permission from the GRDC.

Old or Archival Reports (Projects that concluded in 2007 or earlier)

The information contained in these older reports is now several years old, and may have been wholly or partially superseded or built upon in subsequent work funded by GRDC or others. Readers should be aware that more recent research may be more useful for their needs. Findings related to agricultural chemical use are also potentially out of date and are not to be taken as a recommendation for their use.

Conclusions

At each forum, there was a general consensus about the lack of knowledge on the ecology and biology of certain pest species or systems that limit our ability to support growers. Given the wide geographic spread of grain crops across Australia, and the dispersed research and extension community, innovative ideas are required to facilitate communication and the dissemination of information or advice to growers. As a community, there is also a need to think creatively about the way research is conducted, the process of career progression for young scientists in this field, and how every last piece of data and information from even very small research investments can be obtained.

Recommendations

The outcomes of the three NIPI forums included:

- A greater awareness of pest management issues in retained stubble systems, and identification of knowledge gaps.
- A greater understanding of the gaps in the research, development and extension (RD&E) capability relating to sustainable pest management in grains and new capabilities that may be required in the future.
- Identification of the most pressing pest management problems that need to be addressed in the near future.

Feedback from the final survey and feedback collected after each forum suggest there is still strong support from the research and extension community for activities such as NIPI forums. However, changes could be made to target these activities more to get more people engaged and focused on grains pest management issues.

The main issues identified for each forum were:

Forum 1: What are the biggest challenges for pest management in retained stubble systems?

The plant host resistance option needs to be revisited. Crops are needed that can tolerate disease and invertebrate pests.

Are there good thresholds for beneficials and pests in retained stubble systems?

Are we able to attribute damage properly? Identification issues with new pests and their damage symptoms.

Aphid colonisation in retained stubble systems and how this impacts disease transmission risk.

Lack of knowledge about the impact of canola seed treatments on pests and beneficials.

Forum 2: Responding to, and preparing for, emerging pest issues in grain production landscapes.

Open and direct communication with growers is important for resistance management. But 'smart' on-farm approaches to resistance management are needed.

Good communication networks established and used during the 2014 green peach aphid (GPA) outbreak in South Australia (SA) need to be maintained and coordinated more. Avoid speculation during these types of crises. Research is needed to separate the impact of viruses from the impact of pests.

Early monitoring techniques, such as stratified sampling, are very important. These should be developed further.

Forum 3: Beneficials in grain production landscapes: Quantifying impacts and management priorities.

Participants were asked to critically evaluate if more economic analyses on the impact of beneficials to bring about change of

practice are needed. The arguments for and against that are very informative (see Attachment 4).

Growers do need some more knowledge to make better use of beneficials on their farms (ideas outlined in Attachment 4). Some of these ideas require significant investment to become a reality, but others are achievable even in the short term.

Outcomes

This project centred on the delivery of three forums each with different topic areas:

1. 2015, Horsham, and then co-located with the stubble project meeting in Melbourne (see Attachment 2)
Pest management in retained stubble systems - from research to change of practice. What are the biggest challenges for pest management in retained stubble systems? Fifty eight people attended the day in Horsham. The audience consisted of growers, agronomists and state government department staff.
2. 2015, Cairns (see Attachment 3)
Responding to, and preparing for, emerging pest issues in grain production landscapes. There were 23 attendees for the full-day on the 1/10/2015 with additional attendees present at the Agricultural Economics Society (AES) meeting symposium on the morning of 30/09/2015. These people came from universities and state and federal government departments.
3. 2016, Melbourne (Attachment 4)
Beneficials in grain production landscapes: Quantifying impacts and management priorities
There were 32 participants from universities, state government departments and the CSIRO. An international speaker (Professor Steve Naranjo) was invited to speak about the economic valuation of biocontrol services.

In addition, two surveys of NIPI participants were conducted. Firstly, prior to planning the three forums, and secondly, in early 2017 to identify the next steps that participants would like to see happen (Attachment 1).

The benefits of these activities include the development of a set of recommendations and future project ideas related to each topic, a more cohesive community of practice about invertebrate pest management in grains, and opportunities for PhD students and researchers to present their findings and therefore develop capability in this research area in Australia. Longer term, the maintenance of this capability ensures that growers have the knowledge and support networks they require to respond to new pest threats in a sustainable manner.

Achievements/Benefits

The sustainable management of invertebrate pests in Australian grains production systems is an uphill battle. Grains are grown across a wide geographic area, under different rainfall conditions, and in different farm business contexts. Growers need to be able to manage for pest species that regularly attack crops each year, as well as coping with species that often go undetected but display sporadic outbreaks. The extension capability required to support pest management decision making on a day-to-day basis is not comprehensive, and knowledge gaps limit change of practice in some regions.

In this environment, maintaining an active network of research and extension specialists who deliver targeted research outcomes directly to the grains industry and have the capacity to respond to new pest threats is critical. Over the past nine years, NIPI (www.nipi.com.au) has helped support such a network. NIPI has brought together scientists from state government departments, universities, grower groups and the CSIRO to address pest management issues in the Australian grains industry. In the past, NIPI supported a range of extension and adoption activities, helped develop future research capacity to support grain growers, and ensured that research effort was focused on current pest issues and emerging pest threats. Throughout this project, this work continued by delivering three forums that focused on pest management issues from research through to extension and adoption. The Future NIPI forums contributed to maintaining the NIPI network as an active collaborative community of practice that improves research outcomes and their delivery to industry, capacity to respond to emerging pest issues, and the identification and removal of barriers to the adoption of IPM.

In early 2017, a final survey of participants was carried out to gain their ideas on the previous work and where they would like to see future investment (Attachment 1). There were 21 respondents in total and most worked in broadacre grain crops, but also in cotton and horticultural crops. In general, their feedback about the style and content of the NIPI forums was very

positive. Most respondents appreciated the opportunity to meet participants, discuss broad pest management issues that impact growers, and hear about the latest research and extension findings. However, half of the respondents felt that if NIPI was funded in the future, some changes should be made. Those changes that were most selected included more focus on addressing research issues at the national and regional level, and activities that build capacity in young researchers. Multiple comments were made about how science findings are translated into advice for growers and how to deal with areas where knowledge is limited. Taken in conjunction with the feedback from each individual NIPI forum event, these results suggest there is still strong support from the research and extension community for activities such as NIPI forums. However, changes could be made to target these activities more to engage more people and focus on grains pest management issues.

Other research

Multiple research ideas were outlined at each meeting (see Attachments).

Intellectual property summary

All of the work here is considered public good. The NIPI participants put forward their ideas in a collaborative manner and hope that any future funding opportunities are discussed in an open and transparent manner.

Additional information

Attachments

1. Responses to final NIPI survey.
2. NIPI Forum 1, 2015 Horsham.
3. NIPI Forum 2, 2015 Cairns.
4. NIPI Forum 3, 2016 Melbourne.