Have you considered the biosecurity risks of your agricultural consultancy, field research or field day?

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Abstract
Farm biosecurity is a set of measures designed to minimise the risk of introducing and spreading unwanted plant pests (weeds, diseases and invertebrates) within a farm, between farms or further afield.
Biosecurity is the responsibility of every person visiting or working on a farm. While a farm cannot be barricaded from all unwanted pests, adopting and ensuring compliance to a few routine best practice procedures can greatly reduce farm biosecurity risks, safeguarding farmers as well as all involved in agronomic consultancies, field research and field day events.
Key risks of not implementing biosecurity best practice include the introduction and spread of pests that can result in long term management issues; reluctance of farmers to participate in trials or host field days and negative feedback for you and your business/organisation.
Identifying and managing these risks can be simple. The Grains Farm Biosecurity Program, a national initiative to assist the development and implementation of improved biosecurity practices and surveillance for exotic pests in the grains industry provides a key list of recommendations to reduce the risk and increase biosecurity awareness. An integral component of any grains research and extension activity, field trial, site visit and field day is the development of a biosecurity plan. This identifies risks and outlines their management, primarily through improving or adopting best practice associated with hygiene and movement of people (staff and visitors), livestock, vehicles and machinery.

Key Words
Biosecurity practices, farm hygiene, exotic pests

Introduction
Biosecurity is about the protection of livelihoods, lifestyles, farms, industries and the natural environment that could be harmed by the introduction of new pests, where pest is a collective term used in this paper to describe invertebrates (e.g. insects, mites, snails, nematodes), pathogens (diseases) and weeds.

Sound biosecurity systems are crucial to the success of Australian growers in terms of market access, sustainability of agricultural production, food security and food integrity. Biosecurity is a national priority, implemented off-shore (prior to goods arriving in Australia), at the borders (national and state), regionally and on farm. Australia's geographical isolation and strong quarantine system has ensured that many pests that cause problems for crop production and product storage overseas are not present in Australia. Freedom from these exotic pests provides both a yield advantage as well as real trade benefits for Australian crop production industries.

Industry biosecurity is a shared responsibility involving governments, industry and the general community. Most of the major plant industries in Australia are signatories to the Emergency Plant Pest Response Deed (EPPRD). The EPPRD is a formal, legally binding agreement outlining cost and responsibility arrangements for eradication of new plant pests. As part of obligations under the EPPRD, industries are required to develop and implement an industry biosecurity plan (IBP). IBPs provide a framework (blueprint) for biosecurity preparedness and allow stakeholders to participate in, and take ownership of biosecurity preparedness for the industry (Plant Health Australia, 2010). IBPs cover identification and analysis of the highest risk pests; how industry guards against exotic pests (risk mitigation activities); and how industry responds to exotic pests if an incursion is detected (contingency plans).

National biosecurity is complemented and supported by measures carried out at the regional and farm level. Farm biosecurity is part of implementation of the IBP and covers measures employed by growers and farm staff, advisors/consultants/agronomists, researchers, contractors and others moving on and between farms to protect themselves and their clients. Farm biosecurity plays a key role in protecting Australian agriculture overall at this 'on the ground' farm and regional level.

This paper describes activities occurring in the grains industry to emphasise and illustrate the importance of biosecurity focussed at the farm level; the basic principles however apply to all crop production industries and stakeholders operating at these levels (regionally and on farm). It concentrates on the efforts and outcomes of the Grains Farm Biosecurity Program (GFBP), a national initiative to assist the development and implementation of improved biosecurity practices and surveillance in the grains industry specifically targeted at raising awareness for advisors, consultants and agronomists, researchers and other industry personnel entering and/or working on farms.

Farm Biosecurity

Farm biosecurity is a set of measures designed to minimise the risk of introducing and spreading unwanted plant pests within a farm, between farms or further afield. Farm biosecurity is the responsibility of every person visiting or working on a farm.

The risk of introducing and spreading plant pests occurs when soil, seed, produce, vehicles, machinery, equipment, animals and people move from farm to farm and from region to region. While a farm cannot be barricaded, managing and reducing the risks posed by both exotic and endemic pests can be achieved through the adoption and compliance of a few routine best practice principles and procedures, safeguarding farmers as well as all stakeholders involved in the industry.

Key risks associated with not implementing biosecurity best practice can result in long term costs associated with managing a new pest, including control costs (e.g. sprays), and research costs (e.g. varietal development) and potentially could preclude certain crops from continuing to be produced. For contractors, consultants and researchers, other outcomes associated with failing to adhere to pre-emptive biosecurity best practice, especially if pests are spread between sites, include a reluctance of farmers to participate in trials or host field days, negative feedback for you and your business/organisation, and demonstration of a failure to take on responsibility and a 'duty of care'.

While field work is a vital part of crop production through research and extension activities, field trials, site visits and field days are significant biosecurity risks through their potential to introduce or spread a new pest. Identifying and managing these risks can be simple and the GFBP has developed a key list of recommendations to increase biosecurity awareness, and encourage best practice for the management and reduction of these risks.

Key Biosecurity Best Practice Recommendations

Develop a biosecurity plan

A biosecurity plan that identifies risks and outlines their management primarily through improving or adopting best practice principles and practices associated with hygiene and movement is a critical component of farm and business biosecurity. Plans can be developed for individual farming enterprises, for farming groups working together or for specific activities associated with farms and/or agricultural consultancy and other related activities.

When developing a plan, identify the risks by considering the various means by which a potential unwanted pest could be spread and how these are most easily managed. For example plant pests can be primarily spread by infected seed, stubble, soil, insect vectors and alternate/volunteer hosts or secondarily spread either between affected plants or fields during the growing season by wind, rain-splash, insects (vectors), humans/animals or machinery. The primary risk and initial introduction can be minimised by controlling weeds/alternate hosts (green bridge), ensuring seed is from a trusted/certified source, and that all machinery and equipment entering the farm is clean – free of soil and plant material. Minimising this initial introduction of pests, supported by good farm hygiene, will assist to reduce the secondary spread. As with any risk assessment, some risks may be able to be eliminated, while others may only be able to be reduced.

The additional recommendations provided are key practices in their own right; compiling them provides the basis of a biosecurity plan.

Adopt a 'keep it clean' policy
Pests spread easily when hygiene is poor. Always use a 'keep it clean' policy when moving between farms. This applies to people, vehicles and equipment and product. These should be clean on entering a farm, and ideally clean upon leaving – anything picked up then remains on-farm. Discuss this with the farm owner/manager, and identify wash/clean down facilities or an area on the property that can be used to facilitate good hygiene practice. If clean down facilities are not readily available, are there alternatives to eliminate/reduce the risk? This may include the provision of a reliable farm vehicle for use when on site; a risk eliminating measure, as well as a time saver, reducing the need for vehicle cleaning between multiple farm visits – time which could be better spent conducting agronomic activities.

Carrying a vehicle biosecurity kit is good practice and supports good hygiene. Contents should include provisions for cleaning hands, boots, clothing, equipment and vehicle interior; disposable overalls; spare shoes; disinfection and/or cleaning solution. Water should also be carried to support cleaning. If you are responsible for on farm trials, incorporate a foot bath to the site access and departure, particularly when a trial site involves a field day or visits by numerous parties.

Ensure your 'agreement' with the property owner is detailed
Ask the owner what they want/expect and how you can assist each other. This includes identifying key risks and outlining how these risks will be managed. Consider the following points.

- Are there any declared pests, quarantined areas or other issues on the property that may require extra vigilance? While these may be foremost in the farmers mind, remember it is the unknown that presents the greatest risk.
- Are there any specific priority biosecurity requirements? For example, is there a farm plan with designated roadways to follow? Is there a designated parking area to be used that is monitored for new weeds and other pests? What are the procedures for notifying the grower as you enter and leave the site?

Promote biosecurity best practice and ensure compliance by all involved
Involvement in determining biosecurity measures to be implemented by staff can assist in understanding the risks and improve compliance. Review, evaluate and update existing biosecurity practices/protocols to ensure they remain relevant. Contractors and agricultural business should incorporate standard protocols (operating procedures) into staff induction packages, and ensure employees are aware of specific requirements of individual clients and any facilities to assist them with compliance. If you are responsible for other visitors, such as field day attendees, ensure they not only comply with biosecurity measures but also understand why a footbath or restricted vehicle movement is necessary. This increases awareness and may facilitate biosecurity best practice both on their own properties and at subsequent field days attended.

Field event and trial site specific considerations
Field days may involve the movement of large numbers of people within production areas and the risk of introducing or spreading new pests within a district should be considered by anyone responsible for their organisation.

Good biosecurity practice can be facilitated in the initial planning stages of a trial by considering its location. Placing a trial near a public road reduces the need for extensive on-site vehicle movement, by trial operators, and visitors. The location is even more important if field demonstration days are associated with a trial as this will assist in the management of traffic and people movement.

Good biosecurity practice surrounding field trials and field days can be further supported by a number of other simple measures, such as the following.

- Incorporate biosecurity messages in publicity fliers, e.g. 'please respect farm biosecurity by ensuring all footwear and vehicles are free of soil and plant matter as you enter and leave the site'.
- Consider using a bus for transport to field sites. This reduces the risks associated with extensive vehicle movement. If private vehicles are used, ensure they are parked in a designated area. This area can be monitored for new pests and can assist in containing their spread.
- Incorporate a boot scraper and foot bath at site access points. This can be located either at the entry point to the property, or prior to getting on a bus.
- Have hand sanitiser available for use, particularly where attendees may be handling plant material which could be diseased.

- Register all attendees. This facilitates a 'trace forward/trace back' process in the event of introduction of an unwanted pest, particularly an exotic plant pest.
- Ensure the field site has biosecurity signage. Signs can remind attendees of the importance of biosecurity and requirements at the site.
- Caterers, trade/industry representatives and hire staff erecting marquees should also comply with field day hygiene conditions.
- Remind attendees of the risks and encourage good farm biosecurity practice. This can include advice for when they return home, and attendance at future field days, as well as other general information on good farm biosecurity practice.

Awareness, Surveillance and Reporting on Key Exotic Threats for your Industry

An awareness of key biosecurity threats, both endemic (e.g. present in Australia but not in your area/state) and exotic to Australia, associated with your cropping enterprise/industry can result in early detection. If awareness is supported by immediate reporting, the chance of effective eradication or containment within a restricted area is increased.

To effectively detect something new one must know the normal pests associated with cropping systems. The national GFBP has aligned key awareness messages and education objectives to current grains industry extension programs, to deliver farm biosecurity training and education seamlessly. A critical element to the success of these strategic alliances is "value adding" to existing program content, with biosecurity information integrated in the right context with other farming-system information, as opposed to a stand-alone issue (Bellati et al, 2010). This integration can take various forms such as developing written material for embedding into other course manuals and oral presentations at existing courses, and at farmer and other industry workshops and meetings.

Surveillance through crop monitoring for pests has come to the forefront due to changes to the pest status requirements for export. These changes require scientific evidence of 'proof of absence' of particular exotics for export to many countries and that surveillance is being actively undertaken. Surveillance data can be collected from many types of sources to contribute to an overall picture of a region or country's plant health status (Martin 2010). Surveillance at the farm level contributes essential information to regional biosecurity efforts (particularly early detection which facilitates eradication) and ultimately to the national status (presence/ absence) of a pest. Surveillance at the farm level may be as simple as 'keeping an eye out' for anything unusual and getting it investigated immediately.

Under some state plant health acts there is a legal obligation to report a suspected exotic pest. Reporting mechanisms include the Exotic Plant Pest Hotline (1800 084 881) or contacting your state department of Primary Industry directly – they are responsible for investigation in each state. If you need to submit a sample, they must also be contacted prior to sending/transporting plant material for advice on the correct protocol for sampling, packaging, handling and transport to the laboratory assigned for diagnosis.

Closing Remarks

The fact that Australia is an island has offered some protection from the arrival of exotic pests and diseases that could harm our production systems. The need for sound ongoing biosecurity action is imperative for all stakeholders, particularly those operating at the regional and farm level, where good biosecurity practice and surveillance can be achieved by detecting new pests early and preventing the establishment and spread of unwanted pests through farm hygiene and vigilance.

At the end of the day its all about common sense; employing good biosecurity practice and hygiene measures wherever appropriate should be standard within daily activities – not just when a pest outbreak occurs.

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