

**Australian Wheat and Barley Industry –
Industry Management Plan to supply wheat and
barley to the Chinese market**

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Compiled on behalf of the Australian Grains Industry by:

Grains Industry Market Access Forum



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1. Purpose

The Purpose of this document is to outline the practices that the Australian grains industry uses to ensure that cargoes of Australian wheat and barley meet the import requirements of China. It should be strongly emphasised that Australian industry practices as outlined in this document, supported by the regulatory arrangements applying to the export of all grain from Australia, can provide assurance that exports of Australian wheat and barley can be delivered in accordance with China's import requirements.

Specifically, this refers to Australian wheat and barley exports meeting the following:

- All phytosanitary issues as required by the Government of the People's Republic of China
- Minimising particular pests such as diseases, snails and weed seeds of concern as listed in the Protocol and on the Import Permit
- A nil tolerance in inspected samples for live stored product pests.

The management of grain along the Australian supply chain focuses on the needs of the market:

- By providing market signals to growers to produce the quality of grain required by the market
- Understanding and recording the quality of grain delivered by growers and storing accordingly
- Selection of stock for export that meets particular customer requirements
- Inspection of stock during the vessel loading/container packing process to ensure it achieves Australian export regulations and the phytosanitary requirements of the market
- By supply chain participants referencing the Grain Trade Australia Code of Practice for the Management of Grain along the Supply Chain.

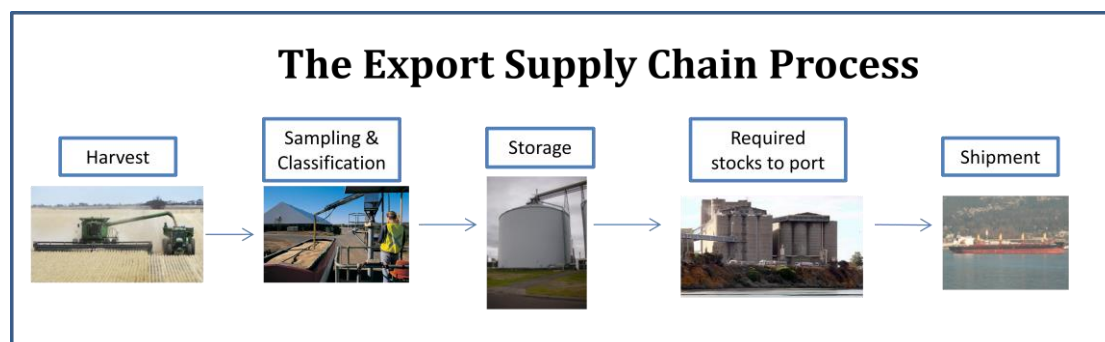
A combination of Australian environmental conditions, grower practices, the use of leading technologies and the industry's management systems and processes along the supply chain ensures that grain with minimal impurities such as weed seeds is grown, stored and selected for export. Australian wheat and barley exports are therefore not cleaned prior to or during export.

Despite these management practices the Australian industry recognises further improvements can be done to ensure the Chinese concerns can be addressed. A number of short-term and longer-term research and management strategies are outlined that may further assist the industry in managing exports to China.

2. Summary

This document outlines how the Australian grain industry manages the supply of wheat and barley to China according to the “Plant Quarantine Protocol (hereinafter referred to as the Protocol) on Australian Wheat and Barley Imports into China between the General Administration of Quality Supervision, Inspection and Quarantine of the People’s Republic of China (hereinafter referred to as AQSIQ) and the Australian Government Department of Agriculture (hereinafter referred to as the Department of Agriculture)”.

An integrated quality management system is used by the grain industry encompassing the entire wheat and barley supply chain to achieve this outcome.



Australian wheat and barley exports to China must meet import requirements as outlined in the Protocol and on the Import Permit as verified by the Department of Agriculture. The industry complies through a range of measures including:

- Farm management practices to minimise the presence of pests in harvested wheat and barley;
- Ongoing research programs to manage the impact of and to control pests on-farm;
- Ongoing education of growers and other participants along the supply chain to utilise the results of this research for pest management;
- Knowledge of the prevalence of pests in grain received and stored in the Australian wheat and barley supply chain;
- Managing stock selection for export to China from areas where the presence of pests is minimised and at a level in compliance with the Protocol and the Import Permit; and
- Verification of the phytosanitary status of stock selection process through sampling and testing of all wheat and barley during loading by the Department of Agriculture.

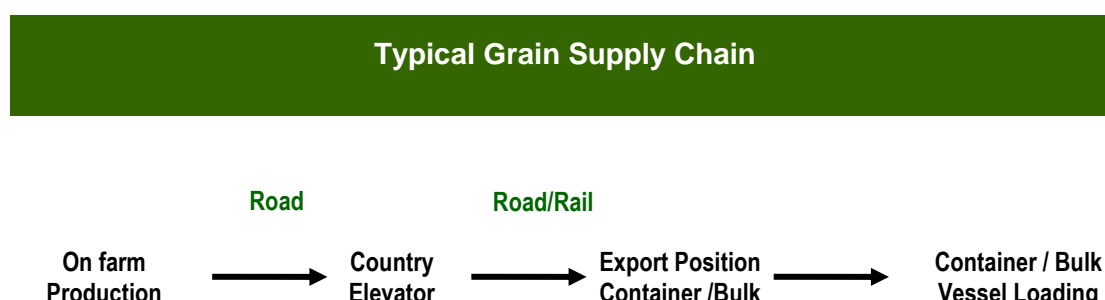
The above management system with a particular emphasis on managing stock selection for China that addresses the issues outlined in the protocol negates the need for cleaning wheat and barley to be exported to China.

In response to the AQSIQ feedback on wheat and barley shipments, the management practices will be further improved through various research activities designed to address the Chinese concerns. While the majority of this research will be done by the industry, it will also be done in conjunction with the Chinese Government where relevant.

3. Australian Grain Industry Practices

3.1 General Supply Chain Overview

A typical supply chain in the Australian grain industry is depicted below. This applies to both container and bulk vessels.



The wheat and barley industries use common standards, common sampling and testing methods and a process of continuous inspection from the point of delivery by the grower to the point of export.

Industry oversight occurs in a number of ways to ensure the industry works in a cohesive manner to meet market expectations. This includes:

- Research, Development and Extension activities to enable profitable grain production by growers, as led by bodies such as the Grains Research and Development Corporation and the Australian Export Grains Innovation Centre;
- Promotion and use of common grain quality standards as developed by industry bodies such as Grain Trade Australia; and
- Leadership by the Grains Industry Market Access Forum which provides a strategic approach and awareness to assist industry to meet market requirements.

Quality control checks are carried out from the time wheat and barley is received into storage, up to the time it is placed in a container or on a shipping belt for loading into a bulk vessel.

Data on the quality and identity of grain stocks is maintained by grain handlers at all points of the supply chain prior to export. From the stock located in country storage,

grain is selected that meets the Protocol and Import Permit requirements. The grain is then transported to the export facilities for loading.

Sampling, testing and documentation accompany the grain along this supply chain, providing confidence the stock selected will be as required by the importing country and customer.

3.2 Australian Wheat and Barley Standards

3.2.1 Development and Review of Standards

Grain Trade Australia (GTA) produces the wheat and barley Standards for use by the Australian grain industry. The standards produced by GTA are reviewed annually by the GTA Standards Committee, which comprises a range of participants representing all sectors of the supply chain and technical experts. The standards are presented to members and industry for comment in draft form before they are adopted for the forthcoming season.

Standards are developed for wheat and barley taking into account a range of factors such as:

- The practicality of grain production on-farm and the ability of growers to meet proposed changes;
- The ability of the supply chain to receive, store and segregate the grain;
- Market quality and end-user requirements;
- Regulatory requirements applying in Australia, internationally and in importing countries;
- The industry's aim to continually improve the quality of Australian grain; and
- Competitor grades and quality.

Wheat and Barley Standards have tolerances for a number of impurities, including pests.

Where major changes to standards are made, this generally requires notice to industry that the standards will be altered in future years, in order to provide industry with sufficient time to change their practices to meet the proposed standards.

3.2.2 Standards for Receiving of Grain from Growers

The Australian wheat and barley industry uses standards at receipt of grain from growers which are broadly similar across the country to determine the quality of wheat and barley received. These are applied to all deliveries of wheat and barley from the grain grower to ensure the grain consolidated meets the requirements of all customers.

Wheat and Barley Standards have tolerances for a number of impurities, including pests.

Wheat and Barley is graded according to industry standards. Grain not conforming to the specifications of a particular grade e.g., milling wheat grades or malt barley grades, may be allocated to an alternate grade where it is compliant or may be rejected.

3.2.3 Standards for Export of Grain

For most markets the standards that apply on export of grain are the standards applied at receipt of grain from the grower unless the market requirements vary.

Where the market has different requirements to the standards applied at the receipt of grain, revised standards that include different tolerances for parameters of concern may be implemented. Alternatively a specific stock selection process may occur in order to meet the market requirements.

In addition, at the point of loading a container or bulk vessel, should pests of phytosanitary concern be detected at levels above that permitted, a rejection process for wheat or barley is implemented by the Department of Agriculture.

3.3 On-Farm Activities

3.3.1 Grain Production

Growers implement a range of agronomic and management activities during the growing of the wheat and barley crop. The growing crop is managed based on the prevailing environmental and crop conditions in order to achieve its maximum potential.

Depending on the region in Australia where the wheat and barley is grown, different pests may be present and have varying impacts on the growing crop. Controls of these pests are implemented as required.

All management is done with the end-user (customer) in mind and to ensure the integrity of the crop is maintained. This includes:

- Regular surveillance by the grower (or adviser) of the growing crop for the presence of pests that may impact on the crop yield and/or quality and undertaking remedial action. Reporting of those pests to relevant Government stakeholders is undertaken where required.
- Ensuring any chemicals to control pests are used according to registered label directions and any residues meet approved maximum residue limits.

A significant amount of research is conducted in Australia to develop a range of options to assist growers to control the presence of pests in the crop. This research continues to refine methods for control and further minimise the impact of all pests in the growing wheat and barley crop, including weeds and snails.

The management options developed from the research are implemented by growers as required through extensive education programs. These management options include specific reference to:

a) Weed Seeds

- Physical control methods such as:
 - At sowing – cleaning seed retained on-farm or sowing with certified seed free of weed seeds.
 - Destroying or capturing weed seeds at harvest.
 - Following harvest – stubble burning to reduce levels of any weed seeds in the paddock prior to sowing the following seasons crop.
- Chemical control methods such as:
 - Prior to or at sowing – paddock preparation using approved chemicals to kill weeds that may be present.
 - During crop growth – weed management using various approved chemical sprays to control weed plants in the growing crop.

b) Snails

- Physical control methods such as:
 - Prior to sowing – stubble burning, slashing, rolling, grazing to minimise the presence of snails prior to sowing of the crop.
- Chemical control methods such as snail baiting in the field with approved chemicals prior to harvest of the crop.

3.3.2 Grain Harvest

Growers may harvest the crop themselves or use contract harvesters. During the harvesting process the grain harvester machinery is modified to manage the quality of the harvested crop. The harvesting process occurs to:

- Maximise the yield and quality potential of the crop.
- Manage the quality of the grain produced in order to meet the relevant industry standards.
- Preserve the integrity of the crop variety.
- Minimise the presence of pests in the grain.
- Minimise the presence of foreign material.

3.3.3 Grain Storage On-Farm

Growers may store the grain on-farm prior to delivery to the export supply chain. The process of storing the grain is managed to preserve the integrity and quality of the harvested grain.

Prior to storing the grain, all equipment and storages are inspected and cleaned to an appropriate state of cleanliness to minimise any unintended contamination.

On-farm storages are of an adequate standard to maintain the integrity and quality of the harvested grain and to enable insect control measures to be undertaken where required.

Records of all relevant management practices are kept by the grower to assist to maintain the integrity of the grain.

3.4 Supply Chain Activities

Obtaining representative samples of grain received, stored and outloaded is a key factor in knowing the quality of grain and providing confidence in being able to meet market requirements.

3.4.1 Grower Deliveries Received at Country Storage Facilities

GTA receival standards include industry recognised and used methods for obtaining representative samples of grower deliveries. Each load of wheat and barley tendered for delivery is sampled and tested according to these industry sampling protocols and grain quality standards.

Based on the quality and grade determined:

- The wheat or barley delivery is placed into storage for that grade.
- Each delivery meeting the grain quality standards for the applicable grade is generally commingled with other deliveries of equivalent quality.
- No further processing of the grain occurs. That is, the grain delivered by a grower into storage does not undergo cleaning to remove impurities.

For all loads delivered:

- Data on the quality is recorded as per the relevant standard; and
- A small sub-sample of each load is collected and compiled on a weighted basis to represent all wheat or barley delivered to that storage unit.

This sampling and data collection occurs for all storage units and at all storage sites across Australia receiving wheat and barley. While minor variations may occur, all large and small storage providers operate the same quality assurance practices.

Based on this sampling and data collection, the quality of wheat and barley at each storage site is known. This information is used in the stock selection process.

During the storage period quality checks are carried out to confirm the integrity of the stored wheat and barley.

3.4.2 Cargo Allocation and Accumulation

As the quality of wheat and barley stored at each site is known, grain can be selected and allocated for export to China according to the Protocol and Import Permit requirements. This allocation process involves close liaison between the storage provider and the exporter.

The primary focus of industry will be on sourcing wheat and barley for export to the China market where it is known that the minimised level of pests will meet the protocol requirements. By using the management systems outlined above, this translates to a low risk of contamination of wheat and barley with particular pests at levels not suitable for the market.

Wheat and barley will not be allocated from areas where, from records of grain delivered by growers, particular pests have been found to be prevalent and are potentially above the market requirements.

Once allocated, grain is selected for outturn from the storage to an export facility. All transport units, whether road trucks or rail wagons are inspected prior to being loaded with wheat or barley, to ensure grain integrity will be maintained. On outturn from the storage into the transport unit, the wheat or barley is visually inspected to ensure it is in a sound condition.

Appropriate documentation accompanies the wheat or barley as it is transported to the loading facility for eventual loading onboard a vessel. This documentation identifies the storage site where it was loaded and a range of other matters such as grade.

At the loading facility, prior to grain being discharged from the road truck or rail wagons, the documentation is inspected. Grain is allocated for unloading into specific storage bins based on the requirements of the market.

Prior to or on discharge from the transport unit, grain is again inspected and samples are taken to confirm the quality of the grain. Grain is placed into the allocated storage unit ready for loading.

While minor variations may exist, the above quality system occurs for grain to be loaded into containers at a container packer facility or at a bulk export terminal facility.

3.4.3 Cargo Loading

Each loading facility registered for export grains implements strict hygiene controls to maintain the quality of the grain. Identity preservation ensures the quality of grain in each storage unit is known and allocated to a specific market based on its quality.

Approval for loading is granted following inspection by the Department of Agriculture of all empty containers or vessel hatches to ensure freedom from pests, contaminants and infestible residues.

All wheat or barley exported from Australia to overseas markets:



- May only be loaded at a facility approved by the Department of Agriculture (Registered Establishment);
- Undergoes sampling and inspection by Department of Agriculture Authorised Officers as legislated under the Australian Government Export Control Act 1982;
- Is sampled at the rate of 2.25 litres per 33.33 tonnes and samples are:
 - Inspected to ensure it is free from live stored grain insects; and
 - Inspected to confirm it meets the relevant phytosanitary requirements of the market.

Specifically in the case of China, the wheat and barley is sampled and inspected to ensure it meets the Protocol and Import Permit requirements.

In the event that pests are found above the levels allowed by the importing country, the wheat or barley will not be permitted to be exported to that market.

On completion of loading, an authorised officer of the Department of Agriculture will endorse the relevant Phytosanitary Certification attesting that the wheat or barley meets China's import requirements.

4. Future Research Strategies

Acknowledging AQSIQ concerns with the levels of various pests in wheat and barley shipments, Australia will conduct further research and where appropriate work closely with China during the next 2-3 years to better understand the concerns and investigate additional management strategies.

These research actions will be grouped into short-term actions (up to 12 months) and longer term actions (over 12 months). Opportunities will be explored for collaboration with AQSIQ in undertaking this research.

4.1 Short Term

4.1.1 Standardising sampling methods

As outlined in this management plan, wheat and barley is sampled and inspected during loading of vessels for export by Department of Agriculture Authorised Officers as legislated under the Australian Government Export Control Act 1982. This procedure ensures samples are representative of the grain for export.

To be able to effectively address China's concerns, it is necessary to understand how the sampling at point of discharge at China of the cargo compares with the Department of Agriculture sampling method in order to be able to fully appreciate the levels of pests in shipments.

4.1.2 Developing Baseline Data on Levels of Pests of concern to China

The level of various pests in wheat and barley are determined when grain is assessed against industry standards. Recording systems are used to document those levels at various stages along the supply chain, including:

- Upon receipt of grower deliveries in country storages
- During vessel loading
- During vessel discharge by AQSIQ

Given the concerns raised by AQSIQ, methods for collection of data on pests in shipments will be investigated. This will include linking that data with pest levels determined in each shipment obtained through the monitoring of each shipment by China as outlined in the Protocol.

4.1.3 Industry Communication and Education

A range of education material is produced in Australia to assist industry to maintain a commercially viable wheat and barley industry.

Given the concerns raised by China, industry will review the available material with a view to addressing the pest issues raised by AQSIQ through:

- Producing material specifically addressing the pests of concern to China
- Liaising with industry, mainly growers, storage providers and exporters on the requirements of China and the management plan required to be implemented
- Liaising with importers in China to ensure the Australian strategy and management plan are understood and to seek assistance from those importers where possible on meeting the requirements of the market.

4.2 Longer Term

4.2.1 On-Farm Management

A wide range of research projects are done in Australia to ensure grain can be produced by growers both profitably and according to customer requirements. These research projects cover the full range of commodities and are not done specifically to address the needs of a particular market.

Potential research projects will be investigated that may address the pests of concern raised by AQSIQ. Specifically, will determine if the research can develop on-farm management strategies to manage and/or lower the presence of these pests in the harvested crop.

4.2.2 Harvest Practices

The primary method employed in Australia to minimize the levels of pests at the time of harvest is to ensure harvesting machinery is calibrated to maximise the harvest of wheat and barley seed, while removing unwanted material.

Options to highlight to growers and harvest contractors the concerns from AQSIQ in relation to pests, and alternative harvest practices will be investigated. This will include developing harvest guidelines aimed at ways to further reducing the levels of pests at the time of harvesting.

4.2.3 Grower Seed

As outlined in this management plan, growers may use seed for sowing from that sourced ex-farm or by using their own seed harvested from the previous crop.

In conjunction with industry organisations responsible for the management of the seed industry, alternate strategies that can be implemented to reduce the potential pest burden in seed to be sown will be investigated.

4.2.4 Industry Standards

As described above, industry standards are developed with reference to a range of factors including market requirements. The standards are reviewed regularly and this review will consider any changes in market requirements. The standards are an important communication tool to the industry and growers in regard to market signals. As China's requirements related to specific pests are understood, the industry standards can be reviewed to determine if any changes are required.

5. Conclusion

The Australian grain industry has a reputation on the international market for supplying wheat and barley that meets customer and importing country phytosanitary requirements.

This ability to supply wheat and barley is done through implementation of an Industry Management Plan and is supported by:

- Industry providing signals to grain growers of the quality required to be produced.
- Storage providers and other participants along the supply chain assessing the quality against agreed industry standards.
- Ongoing research to improve the ability of the industry to meet the importing requirements of China.

With the new protocol for the import of wheat and barley to China and the Industry Management Plan outlined in this document Australia is able to deliver on China's phytosanitary requirements.

6. Definitions & Further Information

Australian Government Department of Agriculture (Department of Agriculture)

Under the Export Control Act 1982, the Department of Agriculture controls grain exports. The Plant Export Operations Branch is part of the Department of Agriculture and is responsible for this task. Refer to <http://www.agriculture.gov.au/>

Crop Production

For further information on management of the growing wheat and barley crop, refer to the following:

Advancing the management of crop canopies www.grdc.com.au/CanopyManagementGuide
Cereal diseases ute guide http://www.grdc.com.au/Resources/Ute-Guides
Crop insects ute guide http://www.grdc.com.au/Resources/Ute-Guides
DAWFA Mycrop – an interactive crop diagnostics tool https://www.agric.wa.gov.au/mycrop
Fact sheet – Green bridge – The essential crop management tool http://www.grdc.com.au/uploads/documents/GRDC_GreenBridge_FS_6pp.pdf
Grownotes for wheat and barley: Wheat - http://asp-au.secure-zone.net/v2/index.jsp?id=1229/1381/4603&lng=en Barley - http://asp-au.secure-zone.net/v2/index.jsp?id=1229/1381/4698&lng=en

Export Control Act

Available at <http://www.comlaw.gov.au/Series/C2004A02606>

Grain and Plant Products Export Industry Consultative Committee

The Grain and Plant Products Export Industry Consultative Committee is the principal advisory forum for Plant Export Operations to consult with the grain and related industries on export certification, export market access, quarantine and other relevant issues.

Grain Industry Market Access Forum (GIMAF)

GIMAF was formed to provide a conduit between government and industry to ensure market access decisions are informed and prioritised in line with overall industry benefit. Refer to <http://www.gimaf.com.au/>

Grain Standards

Are the standards used to measure and describe the physical and biological properties of grain at the time of inspection. Grain Trade Australia set standards applied at the point of delivery of grain from growers. Refer to http://www.graintrade.org.au/commodity_standards

Grains Research and Development Corporation (GRDC)

GRDC is a statutory corporation, founded in 1990 under the Primary Industries Research and Development Act 1989 (PIRD Act). Refer to <http://www.grdc.com.au/>



Grain Trade Australia (GTA)

GTA was formed in 1991 to develop and formalise commodity trading standards, develop and publish the trade rules and standardise grain contracts across the Australian grain industry. GTA also run a number of training courses for supply chain participants on the management of grain. Refer to <http://www.graintrade.org.au/>

GTA Code of Practice for the Management of Grain along the Supply Chain

Available at <http://www.graintrade.org.au/grain-industry-codes>

Import Permit

An Import Permit issued by the Chinese Government is a written document outlining requirements that a person or company is required to comply with when importing Australian wheat and/or barley.

NWPGP (National Working Party on Grain Protection)

The NWPGP is the industry body responsible for providing management and leadership to industry in the areas of post-harvest storage, chemical use, market requirements and chemical regulations.

Pests

In this document refers to those particular diseases, snails or weed seeds which may be present in wheat or barley, as listed in the Protocol and on the Import Permit for China.

Protocol

Refers to the Plant Quarantine Protocol on Australian Wheat and Barley Imports into China between the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China and the Australian Government Department of Agriculture.

Registered Establishment

When exporting prescribed goods such as wheat and barley, they must be prepared or handled for export in a registered premise called a Registered Establishment. For further information, see <http://www.agriculture.gov.au/biosecurity/export/plants-plant-products/plantexportsmanual/volume-2>

Snail Management

For further information on snail management, refer to the following:

Integrated Snail management – Burn ‘em, bash ‘em, bait ‘em
https://www.grdc.com.au/uploads/documents/Snails%20BBB.pdf
Snail identification and control: the back pocket guide
http://www.grdc.com.au/Resources/Publications/2011/03/Snail-Identification-and-Control-The-Back-Pocket-Guide
Snail management Fact sheet
http://www.grdc.com.au/~/_media/4492614E5B6B4540B4E01A43AAD97889.pdf

Stored Grain

For further information on the management of grain storages, refer to the following:

Information hub www.storedgrain.com.au
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Supply Chain

The grain supply chain includes all elements of on-farm, storage and transport infrastructures.

Weeds

For further information on in-crop weed management, refer to the following:

Integrated Weed Management Hub - http://www.grdc.com.au/Resources/IWMhub
Integrated Weed Management Manual - www.grdc.com.au/IWMM
Numerous fact sheets on control of weeds and use of herbicides to minimise weeds within crops. Examples include: Pre-emergent herbicides http://www.grdc.com.au/Research-and-Development/GRDC-Update-Papers/2011/04/Preemergent-herbicides-and-seeding-system-interactions Pre-harvest herbicides http://grdc.com.au/GRDC-FS-PreHarvestHerbicide In-crop herbicide use http://grdc.com.au/Resources/Factsheets/2014/08/In-crop-herbicide-use Managing the weed seed-bank http://grdc.com.au/Resources/Factsheets/2010/02/Managing-the-Weed-Seedbank
Summer fallow weed management manual www.grdc.com.au/GRDC-Manual-SummerFallowWeedManagement
Tools – Weed Seed Wizard - https://www.agric.wa.gov.au/weed-seed-wizard-0
Weedsmart - www.weedsmart.org.au . Weedsmart includes a 10 point Plan