

Report to grain growers

Bedstraw Eradication Program 2021/22

Foreword

On behalf of my fellow committee members, I am pleased to present this report outlining the delivery and outcomes of the 2021/22 Bedstraw Eradication Program.

Three-horned bedstraw is a competitive weed that can cause considerable yield loss in crops, and its seeds contaminate fodder and grain. To stop the weed becoming established in Western Australia and impacting production, WA grain/seed/hay growers (via the Grains, Seeds and Hay Industry Funding Scheme) fund the Bedstraw Eradication Program.

The success of the program has continued into 2021/22, with only a small number of bush areas on the affected property quarantined. Many of these bush areas are close to completing the six-year eradication phase. Eradicating the weed is not an easy task – the presence of bedstraw requires infested areas to be quarantined whilst a nine-year program is undertaken – six years of herbicide treatments followed by a three-year ‘release phase’. Nevertheless, we are on track to rid WA of this invasive weed.

Research continued during the year, with new surveillance techniques for detecting potential infestations trialled and improved; and our partnership with CBH for analysing grain samples has greatly enhanced the program’s surveillance network. This gives great confidence that there are no large, undetected infestations of bedstraw hidden in the wheatbelt, with nil detections in 2021/22.

The continued effectiveness of the eradication and surveillance activities, coupled with continuous technological improvements, means we are ever nearer to assuring the eradication of three-horned bedstraw from Western Australia.

The support of WA growers to our industry’s biosecurity, through the Grains, Seeds and Hay Industry Funding Scheme, and the hardworking and committed DPIRD project team, has resulted in wonderful success and significant achievements. Eradication is possible, which will help safeguard our valuable industry and food security.

Rod Birch
Chairman

Grains, Seeds and Hay Industry Funding Scheme Management Committee

30 June 2022



Traversing through canola paddocks.

Program review

The Bedstraw Eradication Program operates under the Biosecurity and Agricultural Management Industry Funding Scheme (Grains) Regulations 2010.

All program milestones have been met and the operational program has been delivered in full.

Approved Plans developed annually for each infested property in consultation with the Grains, Seeds and Hay Industry Management Committee (GSHIMC), the Department of Primary Industries and Regional Development (DPIRD) and the landholders detail management actions, estimated costs and timeframes of agreed actions.

The two known infested properties ended the final Release Phase of a nine-year eradication program at the end of 2019, with full release from quarantine restrictions of one property and significant reduction of quarantine area on the other property. At the end of 2020 further areas were released from quarantine restrictions.

DPIRD implements the program which includes six consecutive years of winter spray treatments, followed by a three-year release protocol and post-eradication monitoring phase. Machinery inspections, quarantining, landholder compliance winter spraying and end of season double-knock herbicide treatments form the key components of the Approved Program.

The GSHIMC believes the current program is delivering the best value for the funding provided and is achieving the project outcomes of containment and eradication.

Achieved milestones

- Successful control treatment of remaining quarantine area.
- Several bush areas completed the six-year eradication phase and progressed to the three-year release phase.
- Thorough ground searching undertaken on the property, with no plants found.
- GrainCam surveillance in high-risk areas.
- Cooperation and support by the landholder remain at a high level.
- Grain sampling through Cooperative Bulk Handling (CBH) analysis has greatly enhanced the program surveillance. To date no new infestations have been detected.

This is expected, as the Eradication Program has all arable areas of the Approved Program now out of quarantine and returned to the landholder. Only nine hectares of (fenced) “Bush Area” remain under quarantine and much of this is now in the Release Phase of the Eradication Program.

- Approximately \$149 139 was directed to program support and operational activities such as control treatments, regulation, and property surveillance.
- A total of \$54 545 was expended to undertake CBH grain surveillance.

Program expenditure

The total expenditure for the 2021/22 Program was \$203 684 as of 30 June 2022 (Table 1) which was \$32 640 over the budgeted amount of \$171 044.

The over expenditure was due to staff project funding remaining the same as 2020/21 and not being reduced – as was originally budgeted.

Although the expenditure was \$32 640 over the budgeted amount, the overall 2021/22 expenditure was significantly less than previous years.

Table 1 Program expenditure 2021/22

Operational expenditure	
Employee expenses	\$119 703
CBH surveillance	\$54 545
Contractors	\$12 635
Chemicals	\$4 109
Other operational expenses	\$12 692
Total expenditure	\$203 684

Program results at a glance

Recent improvements

Improvements in the delivery of the program remain important for ongoing development and effectiveness. Significant operational refinements during the 2021/22 Operational Program included:

- Contingency treatment options to allow for seasonal variations and program needs.
- GrainCam implementation during crop harvest of released paddocks to support surveillance efforts and confirm bedstraw absence.

Compliance

Audit and compliance remain a strong focus of the program with strict quarantine protocols in place and maintained by DPIRD officers on both properties to prevent bedstraw spread outside the existing boundaries. This includes clean down processes for the movement of vehicles, machinery and equipment in and out of the quarantined areas and restricting stock access. Quarantine release processes were followed with full landholder and contractor cooperation.

Auditing of all treatments and operations occurred to ensure successful herbicide application and coverage over the whole of the required areas.

DPIRD assisted landholders with regulatory and operational facets ensuring both the Approved Program and quarantine requirements were met.

Industry Funding Schemes

The GSHIMC met in February 2021 and approved the programs for the control of skeleton weed and the eradication of three-horned bedstraw on behalf of the WA Grains Industry.

The Committee recommended a contribution rate on grains, seeds and hay be retained at 25 cents per tonne for grain and 12.5 cents per tonne for hay. These funds are used to support the Skeleton Weed and Bedstraw Programs, with skeleton weed allocated 94% of the funds collected.

All contributions to the scheme are collected by purchasers of grain and hay and are paid into a GSHIFS Declared Pest Control and Compensation Account, which is managed by DPIRD in consultation with the GSHIMC.

Research

The program has continued to trial new surveillance techniques to detect bedstraw seed and map locations in the field. This included modifications to the GrainCam technology to allow autonomous use and better seed detection. The GrainCam is a device mounted to a combine during harvesting to detect seed, which previously required manual intervention to operate.

The program continued its research into improving bedstraw detection including in lupins and barley, as these were the main crop planted in high-risk areas in 2021.



Extension and awareness

The three-horned bedstraw factsheet, developed to assist growers and the general public in identification and reporting is available online.



Program results at a glance

Findings

Success of the Program is evident with four of the seven bush areas under quarantine restrictions having completed the final year of the six-year eradication phase in 2021 and progressing to the three-year release phase.

Seven fenced bush areas within the released paddocks still remain under quarantine. No bedstraw plants were detected.

Successful and timely treatments and searches have prevented seed set and exhausted the seed bank. No bedstraw plants were detected in other areas during property inspections.

Suspect bedstraw seed was detected in GrainCam images during post eradication monitoring activities. Images do not allow positive identification. No bedstraw plant material was found during inspections or in samples collected.

No bedstraw seeds were detected during CBH seed image analysis, providing some level of confidence that bedstraw has been contained to the two known properties and has not been identified in the grain growing areas of WA.

After evaluation of this year's results, the Program recommends continued surveillance using seed imagery technology, as the risk of bedstraw incursions into WA is ever-present. Early detection is the best strategy to quickly eliminate infestations at a minimal cost.



Infested properties

There is now currently one property in WA known to be infested with three-horned bedstraw.

A second property in the Merredin shire with one paddock of 48 hectares was declared bedstraw free and formally released from quarantine restrictions in November 2019.

West Arthur:

- This property has several bush areas equating to 9 hectares under quarantine, reduced from 280 hectares.
- In 2021, four of the seven bush areas completed the final year of the six-year eradication phase and entered a three-year release phase.
- The three other bush areas remain under various stages of the eradication phase. These have been fenced to exclude stock and will continue receiving chemical eradication treatments.

Area searched

Whole of paddock searches were conducted during September by DPIRD search teams.

This included all quarantine bush areas as well as non-quarantine bush and arable areas including ex-quarantine paddocks (an estimated 90 hectares).

Continuous monitoring of known hotspots also occurred throughout the season.

Following the suspect seed images from harvest surveillance, inspections of the identified areas were completed.

Post eradication monitoring

- Monitoring of released paddocks included inspections of historical hotspots at both properties, and the use of GrainCam on the West Arthur property, during lupin and barley harvest, of 50 hectares of the previously infested 271 hectares.
- Physical samples collected during and after harvest were visually inspected.

Program results at a glance

CBH grain surveillance

The eradication activities were complemented by a passive surveillance program funded by the GSHIFS in partnership with CBH.

CBH screening technology employed for commercial grading of grain and assessment of bedstraw seed contamination was used on 6 489 grain samples from the 2021 harvest collected from targeted CBH sites throughout the state. All the samples reported as “suspect” were visually inspected to confirm that no bedstraw was present.

Infested area

West Arthur

- Seven bush areas within the released paddocks are known to be actively infested.
- There were no bedstraw plants found during the 2021/22 season.

Merredin

- There have been no bedstraw plants detected since 2014.

Control treatments

Timely and successful treatments were applied to all quarantined areas with designated bush areas receiving three treatments during the season.

This included a contingency treatment due to extended growing conditions.

This provides confidence that any undetected bedstraw will not survive to produce seed.

All operations were audited by DPIRD officers for treatment effectiveness.



Fenced infested bush area within barley paddock post-first control treatment.



Fenced infested bush area within lupin paddock post-first control treatment.



Contractor treating known infested site for bedstraw control.



Fenced infested bush area within barley paddock prior to second control treatment.

Planned improvements to the program in 2022/23

A meeting with the landholder and DPIRD staff was held at the end of the 2021 Approved Program activities season, to review the program and look at what is working well and identify areas for improvement. Also discussed and finalised was the 2022 Approved Program and post-eradication monitoring activities. A further meeting was held in early 2022 following harvest GrainCam results.

Main items discussed and recommendations

- **Burning of leaf litter in designated bush areas was successful in removing debris and improving spray application.**

Continue burning operations at identified locations as these assisted the program to manage bedstraw by promoting germination and destroying any potential seed.

- **Four of the seven fenced bush areas will complete the first year of the three-year release phase at the end of 2022. One bush area will have completed year five and two bush areas will have completed the final year of the six-year eradication phase and will enter Year 1 of the three-year release phase at the beginning 2023.**

All bush blocks will continue receiving two treatments each season during the release phase.

- **Post eradication monitoring of newly released quarantine areas.**

All historical infested paddocks released from quarantine will continue to be inspected to ensure bedstraw has not re-established, as part of the ongoing (post-eradication) monitoring program. This includes targeted large search by foot of paddocks with suspect seed finds.

All newly released paddocks placed in crop will be searched during harvesting using GrainCam technology as well as grain sample collection for seed contamination screening to provide an added measure of surveillance on these paddocks.

- **Ongoing awareness raising of bedstraw, its identification and reporting is important to the grains industry and other relevant stakeholders.**

Continue enhancing education and awareness by including bedstraw and skeleton weed information and awareness raising activities at field days, farmer events, and the DPIRD website.

