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Department of
Primary Industries and
Regional Development



Grains, Seeds and Hay
Industry Funding Scheme

Grains, Seeds and Hay Industry Funding Scheme **Annual Report**



2021/2022

Images:

Image 5 © Michael Kaco | Dreamstime.com

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October 2022

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Contents

Contents.....	3
List of acronyms	4
From the Chair	5
1. Overview of the Grains, Seeds and Hay Industry Funding Scheme	6
2021/22 Grains, Seeds and Hay Industry Funding Scheme at a glance	7
2. Industry Management Committee.....	8
Membership terms.....	9
3. Operation of the Grains, Seeds and Hay Industry Funding Scheme	10
Industry's priorities for funding.....	10
Governance	12
Scheme governance	12
Committee governance.....	14
Communications and consultation.....	15
Other	16
4. Effectiveness of the Scheme	17
Opt outs and refunds.....	17
Collection rates.....	18
5. 2021/2022 approved biosecurity programs	19
Skeleton Weed Program	19
Bedstraw eradication program.....	22
Research and development.....	24
Biological controls for skeleton weed.....	24
IFS research program.....	25
6. 2021/2022 financial details	28
7. Direction for 2022/2023	30
Appendix 1	32
Appendix 2	33

List of acronyms

APVMA	Australian Pesticides and Veterinary Medicines Authority
BAM Act	<i>Biosecurity and Agriculture Management Act 2007</i>
CBH	Cooperative Bulk Handling
DPIRD	Department of Primary Industries and Regional Development
GBAC	Grains Biosecurity Advisory Committee
GIWA	Grains Industry Association of Western Australia
GPS	Global positioning system
IFS	Industry Funding Scheme
LAG	Local Action Group
WA	Western Australia



Image 1 – Harvesting wheat

From the Chair

I am pleased to present the 2021/22 Grains, Seeds and Hay Industry Funding Scheme (IFS) annual report to the Scheme participants, stakeholders involved in the Western Australian (WA) grain/seed/hay industry and to the Minister for Agriculture and Food.

2021/22 was an historic moment for the WA grains/seeds/hay industry, with a record 24 million tonne harvest. This was somewhat tempered by the significant production impacts from widespread frost events, which resulted in losses of more than 2 million tonnes of grain, and severe wet and waterlogging conditions in south-western parts of the grain producing region. In addition, the industry contended with the destruction from Cyclone Seroja, which occurred early in the season, and the devastating fires that ripped through 50,000 hectares of bush and farmland over the summer. Despite these challenges, the resilience of our industry continues to show, with another bumper harvest expected this year.

In my first year as the Chair of the Grains, Seeds and Hay IFS Management Committee, the direction of the scheme and its place in WA's biosecurity system was an important discussion point for the Committee. The risk to our industry from pests, weeds and diseases is increasing, and the IFS needs to be well-positioned to be able to respond if required.

There are various aspects that require consideration. We have spent time on the Committee's strategic plan, worked with the other IFS committees to develop a robust cross-IFS communications strategy, progressed new tools and technologies to help growers self-manage skeleton weed, begun to explore ways to better integrate the IFS into the state-wide framework for grain/seed/hay biosecurity, and started to plan comprehensive industry engagement on the direction of the IFS.

There is more work to do in this space, and 2022/23 will be an important year.

The success of the IFS-funded control programs continues. A further four areas quarantined for three-horned bedstraw moved into the 'release phase' of the eradication program; and the skeleton weed program facilitated the eradication of the weed from 15 properties. The funding from WA grain, seed and hay growers has been vital to these achievements, as has the dedication of the staff from the Department of Primary Industries and Regional Development who deliver the programs on our behalf.

The Grains, Seeds and Hay IFS continues to be well-supported by growers. To me, this shows the dedication of our industry to its biosecurity. As the risk of pests, weeds and diseases increases, we need to continue to work together to deliver a biosecurity funding scheme that supports the future of our industry.



Rod Birch

Chair, Grains, Seeds and Hay Industry Funding Scheme Management Committee

1. Overview of the Grains, Seeds and Hay Industry Funding Scheme

The Grains, Seeds and Hay Industry Funding Scheme (IFS) has been operating since 2010 to address biosecurity threats relevant to Western Australia's (WA) grains, seeds and hay industry. The Scheme is established under the *Biosecurity and Agriculture Management Act 2007* (BAM Act) to enable growers to identify the pest and disease priorities at a whole-of-industry level and raise funds for activities to address these priorities.

There are currently three Industry Funding Schemes in operation. In addition to the Grains, Seeds and Hay IFS, there is a Cattle IFS and a Sheep and Goat IFS. The three IFSs operate in a similar manner.

For the Grains, Seeds and Hay IFS, funds are raised through grower contributions on each chargeable transaction. The contributions are collected by registered receivers¹ and forwarded to the Department of Primary Industries and Regional Development (DPIRD) on behalf of the grower. In accordance with the IFS regulations, DPIRD maintain and administer the Grains, Seeds and Hay Industry Declared Pest Control and Compensation Account (the Account) in consultation with the industry.

Growers do not have to participate in the Scheme – there is a mechanism that allows them to opt out. Opting out does not remove the legal requirement for landholders to deal with the pests and diseases being targeted by the Scheme but it does disqualify the grower from receiving any benefits provided by the Scheme, such as on-ground assistance and compensation.

The Grains, Seeds and Hay IFS is overseen by a seven-member Industry Management Committee. The Minister for Agriculture and Food appointed the committee members after inviting industry nominations and receiving advice from an industry-based Appointments Committee. As required by regulation, the majority of the Industry Management Committee are full participants of the Grains, Seeds and Hay IFS.

The Industry Management Committee is responsible for approving payments made from the Account and approving the biosecurity-related programs funded through the Scheme. They also provide advice to the Minister on the Scheme's area of operation and the contribution rate.

The State Government, through DPIRD, provides the necessary support to ensure proper governance and the effective operation of the Scheme and Management Committee. This includes secretariat, communications, policy and technical advice, as well as financial accounting and reporting. Furthermore, the normal regulatory inspection and compliance activities undertaken by DPIRD closely complement the priorities of the Management Committee.

¹ As defined by the Biosecurity and Agriculture Management Industry Funding Scheme (Grains) Regulations 2010

2021/22 Grains, Seeds and Hay Industry Funding Scheme at a glance

During 2021/22:

- Contributions of 25 cents per tonne applied to the first sale of all grain and seed produced within the agricultural areas² of WA
- Contributions of 12.5 cents per tonne applied to the first sale of all hay produced within the agricultural areas² of WA
- Contributions totalling \$5,129,950 were received
- Contributions were used to fund programs to control skeleton weed and eradicate three-horned bedstraw
- The cost of the skeleton weed control program was \$5,021,103
- The cost of the three-horned bedstraw program was \$203,684
- \$341,789 was used for research and development activities to improve the effectiveness and/or efficiency of the IFS-funded programs
- Committee costs were \$20,309
- Eleven growers opted out of the Scheme in 2021/22, with a total of \$5011 to be refunded to four of these growers in the 2022/23 financial year.

Key achievements:

- More than 400,000 hectares searched for skeleton weed and an additional 10,000 hectares were surveyed using drones
- 6000 hectares of skeleton weed infested land received chemical treatments
- More than 25,000 hectares of paddocks were removed from the skeleton weed 'infested list'
- A total of 6489 grain samples from 139 targeted sites across the wheatbelt were screened for bedstraw using CBH screening technology
- Four of seven bush areas on the property affected by three-horned bedstraw moved to the 'release phase' of the eradication program
- Successfully developed a cross-IFS communications strategy in partnership with the Cattle and the Sheep and Goat IFS Management Committees
- Skeleton weed biotypes and the presence of biological control agents were mapped across WA's agricultural region
- Research continued to improve skeleton weed chemical controls, test new and improved surveillance techniques and technologies for skeleton weed and three-horned bedstraw and evaluate microwave and electric discharge technologies as control options.

² The agricultural areas (roughly a line from Northampton to Esperance) are defined as all local government districts excluding Broome, Halls Creek, West Kimberley, Wyndham-East Kimberley, Ashburton, Carnarvon, Coolgardie, Cue, Dundas, East Pilbara, Exmouth, Laverton, Leonora, Kalgoorlie-Boulder, Meekatharra, Menzies, Mount Magnet, Murchison, Ngaanyatjaraku, Port Hedland, Roebourne, Sandstone, Shark Bay, Upper Gascoyne, Wiluna and Yalgoo

2. Industry Management Committee

For the majority of the 2021/22 financial year, the Grains, Seeds and Hay IFS was overseen by a six-member Industry Management Committee. The Committee terms of reference are at Appendix 1.

The purpose of the Industry Management Committee is to support a profitable, viable and sustainable grain/seed/hay industry by maintaining a funding process for the effective mitigation of biosecurity risks to WA growers

Rod Birch (Chair) has been active in the grains industry for 40 years. He is currently involved in a 15,000-hectare grain growing business in the Midwest region of WA. Rod is the past Deputy Chair of Grain Growers Ltd and a Director on the External Advisory Board of the Institute of Agriculture at the University of WA.

Anne Wilkins (Deputy Chair) has 30-years' experience, predominately in the grains industry, including research and development, agronomy, market research, trade development and working with end-users. She has worked in the commercial, government and not-for-profit sectors and, with her husband, owns and operates a cropping and sheep farm in Badgingarra.



Image 2 – Round hay bales

Belinda Eastough farms a mixed stock/crop family farm at Yuna with her husband and is also a part-time agronomist for Elders Limited. She has had an extensive career working with grain growers and grower groups, and is heavily involved with the Yuna Farm Improvement Group.

Judith Foss has more than 20 years' experience as a self-employed primary producer in a mixed broadacre family farming enterprise in Bruce Rock. She is active in the grains industry, including participating on the National Policy Group of GrainGrowers Australia.

Hellene McTaggart farms with her husband and family in Mingenew and Canna, managing a cereal-dominant cropping program and Angus cattle herd. She has a background working with grower-led organisations including the West Midlands Group, Grower Group Alliance and Rural Edge (formally Partners in Grain WA). In addition, Hellene works part-time for a consulting firm and is a Shire of Mingenew Councillor.

Jim Sullivan has been involved in the agricultural industry for more than 50 years, and currently runs a successful livestock enterprise in the Varley-Holt Rock area of WA. He has been involved in the Eastern Wheatbelt Declared Species group for 13 years, including as the Chair, and is a past Chairman of the Board of Wheatbelt Natural Resource Management Inc. Jim is a former President of the Central Country Zone with the Western Australian Local Government Association.

Mr Steve Tilbrook is a retired farmer that still helps on the family farm at Mt Madden. Steve has held various positions including Deputy Chair of the Grains Industry Association of WA (GIWA), Director of CBH Group, member of the GrainGrowers National Policy Group, member of the Agricultural Produce Commission and Chair of the GIWA Barley Council.

Membership terms

Name	Position	Expiry of term
Rod Birch	Chair	30 June 2024
Anne Wilkins	Deputy Chair	30 June 2024
Belinda Eastough	Member	30 June 2022
Judith Foss	Member	30 June 2022
Hellene McTaggart	Member	30 June 2024
Jim Sullivan	Member	30 June 2022
Steve Tilbrook*	Member	30 June 2022

* Steve resigned from the Committee in August 2021.

The membership of the Committee from 1 July 2022 is at Appendix 2.

3. Operation of the Grains, Seeds and Hay Industry Funding Scheme

Since the introduction of the Grains, Seeds and Hay IFS in 2010, the Industry Management Committee (the Committee) has governed the collection, management and use of industry funds to deliver a biosecurity funding scheme that benefits the WA grain, seed and hay industry. During the 2021/22 financial year, the Committee held four ordinary meetings and one extraordinary meeting, and worked on a several activities.

Industry priorities for funding

In 2021/22, the IFS was used to fund programs targeting two priority weeds – skeleton weed and three-horned bedstraw.

The IFS-funded Skeleton Weed Program began in 2010, continuing the work done in previous years to reduce the spread of the weed in the agricultural region of WA. The program has successfully slowed the spread of skeleton weed, reducing the impacts of the weed on WA's grain/seed/hay production.

The Committee formally approved the 2021/22 Skeleton Weed Program, in accordance with the IFS regulations, at its meeting held in April 2021. Consistent with the recommendations from the 2020 review of the program, the Committee has committed to identifying and developing improved control and surveillance methods. Approval was also given by the Committee for several research and development projects. These will give landholders options and tools to help them manage the weed.

Detailed information on the 2021/22 program to control skeleton weed, and the associated research projects, is at Section 5 of this report.



Image 3 – Skeleton weed



Image 4 – Three-horned bedstraw

There is only one known infestation of three-horned bedstraw in WA, and the property is close to meeting the conditions required for eradication to be formally declared. To help achieve this, the Bedstraw Eradication Program continued into 2021/22.

The Committee formally approved the 2021/22 Bedstraw Eradication Program, in accordance with the IFS regulations, at its meeting held in April 2021. Approval was also given to fund research and development to improve bedstraw surveillance and detection methods. Detailed information on the 2021/22 program to eradicate three-horned bedstraw is at Section 5 of this report, as is information on the progress of the research and development activities.

The Committee rely on industry direction and advice from DPIRD to ensure the IFS is addressing the key pest and disease risks

The Committee was represented on the Grains Biosecurity Advisory Committee (GBAC) – an industry-government consultative group. The GBAC was established to provide a forum for communication on grains biosecurity and related matters such as market access and traceability. Importantly, the GBAC may advise the Committee on the biosecurity priorities of the WA grains industry.

Governance

Scheme governance

Program monitoring, evaluation and continuous improvement: Over the course of the year, the Committee actively monitored the implementation of the IFS-funded programs. Written and verbal progress reports were provided to the Committee at each ordinary meeting, including issues, successes and expenditure. Detailed information on the 2021/22 programs is at Section 5 of this report.

IFS finances: The Committee monitored the financial position of the IFS over the course of the year. This included quarterly financial reports from DPIRD as well as expense reports relating to the IFS-funded programs. This oversight helped the Committee ensure that funds were being expended appropriately and enabled the Committee to forward-plan.

Remittance of IFS contributions: The Committee monitored the remittance of IFS contributions to ensure compliance with the regulations. Where discrepancies occurred or were suspected, the Committee requested these entities be followed up by DPIRD.

Opt out refunds: In August 2021, DPIRD advised the Committee that four applications for refunds of IFS contributions paid during the 2020/21 financial year were received. All four applications were from growers that had opted out of the Scheme for that particular year. After considering the applications, the Committee directed the Director General to repay the amounts – in accordance with the requirements of the IFS regulations. In August 2022, the Committee were notified of additional application relating to the 2020/21 financial year, which was subsequently approved by the Committee.

IFS area of operation and contribution rate: As required by the IFS regulations, in May 2022 the Committee made its recommendations to the Minister for Agriculture and Food on the 2022/23 Grains, Seeds and Hay IFS contribution rate and area of operation. The Committee recommended that the contribution rate remain at 25 cents per tonne (grain/seed) and 12.5 cents per tonne (hay) – to be applied to the first sale of grain, seed and hay produced within the agricultural areas of WA. Although these rates are not expected to raise the full funding for the 2022/23 programs, the recommendation was made by the Committee on the basis that there were sufficient funds available in the IFS Account to cover the costs of the 2022/23 IFS-funded programs. The rate will be reviewed in 2023.

The Minister endorsed the recommendations made by the Committee, as published in the *Western Australian Government Gazette*.

The primary role of the IFS Management Committee is to provide effective governance over the Scheme

Review of the IFS regulations: The IFS regulation review report, which was released in September 2021, made several recommendations. These included recommending that the Committee:

- Investigate developing and implementing a collaborative communications campaign with the other IFS committees; and
- Review its internal procedures for approving payments from the IFS Account to determine if there is scope for a simplified approvals process for small expenditure amounts.

The Committee agreed with these recommendations, and the other recommendations made in the report. Significant progress was made during the year to address the recommendations requiring action from the Committee.

Attracting Committee members: The ability of the Committee to provide effective governance and fairly and impartially represent the best interests of growers relies on the appointment of suitably qualified and diverse candidates. It can be challenging to attract candidates to industry roles, as these positions are in addition to on-farm and family commitments. To assist, the Chair (with the Chairs of the other IFS Committees) requested the Minister ask the Public Sector Commissioner to review the remuneration of Committee members. It is important that the level of remuneration is commensurate with the work that is undertaken and recognises the commitment made by the members.

IFS Management Committee members are, in general, farmers and pastoralists with a strong interest in and commitment to the continued biosecurity of their industry



Image 5 – Canola in flower

Committee governance

Strategic plan: The Committee was guided by its [Strategic Plan](#). The Plan documents the purpose, role, goal and strategies of the Committee, as well as criteria for making investment decisions.

A comprehensive review of the Strategic Plan began in June 2022, with the Committee participating in a facilitated workshop. The Plan will be finalised in partnership with the industry during the next reporting period.

The strategic plan review ensures the strategy is focused and addresses industry's needs and expectations of the IFS

Governance procedures: Good governance is an essential part of the operation of the Committee. The governance framework that shaped this during 2021/22 included various critical documents, processes and procedures:

- BAM Act
- Biosecurity and Agriculture Management Industry Funding Scheme (Grains) Regulations 2010
- Committee terms of reference
- codes of conduct and ethics
- duty statements
- disclosure of interest procedures
- decision-making processes
- annual reporting; and
- monitoring and evaluation.

The Committee's internal governance procedures and frameworks were reviewed in October 2021. The next review will be October 2023.

Performance review: The annual self-evaluation of the Committee's collective performance of its duties was undertaken in October/November 2021. The results suggest that the Committee is operating effectively; however, there were two areas to improve:

- Decision-making on IFS investments. Improving the Committee's understanding of the pest, weed and disease threats to WA's grain/seed/hay industry to ensure the IFS is addressing priority areas and delivering the best value proposition for growers. This includes reviewing the criteria used to determine IFS investment.
- Program reporting to the Committee. Ensuring appropriate, timely and relevant information is presented so the Committee can clearly understand the progress, achievements and outcomes delivered by the IFS-funded programs.

Communications and consultation

Cross-IFS communications strategy: Following the decision made by the three IFS Committees at the joint meeting held in March 2021, and in response to the recommendation from the review of the IFS regulations, the Committee agreed to develop a cross-IFS communications strategy with the other IFS committees.

The Grains, Seeds and Hay IFS Management Committee was represented on a cross-IFS communications working group to work with a communications consultant to develop a robust strategy. The objectives of the strategy, when implemented, are to improve understanding of the role that the IFSs play, increase grower engagement with the IFS and Committee, and contribute to the sustainability of the Committees.

A significant increase in IFS-related communications is anticipated in the next reporting period, as the strategy gets put into action.

Communication activities: The Committee participated in various events and other activities to increase grower awareness and understanding of the Scheme, develop networks and encourage industry feedback:

- Participated on the GBAC
- Met with the WAFarmers Grains Council
- Provided an overview of the role of the IFS to the GBAC
- Information displays at major field days
- Media releases resulting in articles in the rural press
- Radio interviews
- Advertisements in rural newspapers.

IFS webpages: During 2020/21 the Grains, Seeds and Hay IFS provided up-to-date information through its webpages on the DPIRD Agriculture and Food website. The [IFS webpages](#) include links to key documents such as the Committee's strategic plan and annual reports.



Image 6 – Banner used to promote the three IFSs at field days and other events

Other

Review of the BAM Act: In June 2022, the Committee were invited to make a submission to the BAM Act review. As the IFSs are enabled by the BAM Act, it was appropriate for the Committee to make a submission. This was done in partnership with the other IFS Committees. The joint IFS Committee submission focused on the aspects of the BAM Act relevant to the operation and functioning of the IFSs. The submission was based on the Committees' experiences working within the bounds of the legislation and feedback it had received from industry. The key points raised by the Committees in the submission were:

- the value of the IFS provisions and benefits delivered
- improvements to the appointment of members
- tensions between program delivery and State Government recruitment policies; and
- confusion between IFSs and declared pest rates.



Image 7 – Bales of hay

4. Effectiveness of the Scheme

Opt outs and refunds

The number of growers opting out of the Scheme remains low, with only 11 growers opting out in 2021/22 (Figure 1).

Of the 11 growers that opted out in 2021/22, four applied for a refund of their contributions. These refunds amounted to \$5011.

More than 99% of Western Australian grain/seed/hay growers participate in the Scheme, which may indicate the value of the Scheme to the industry

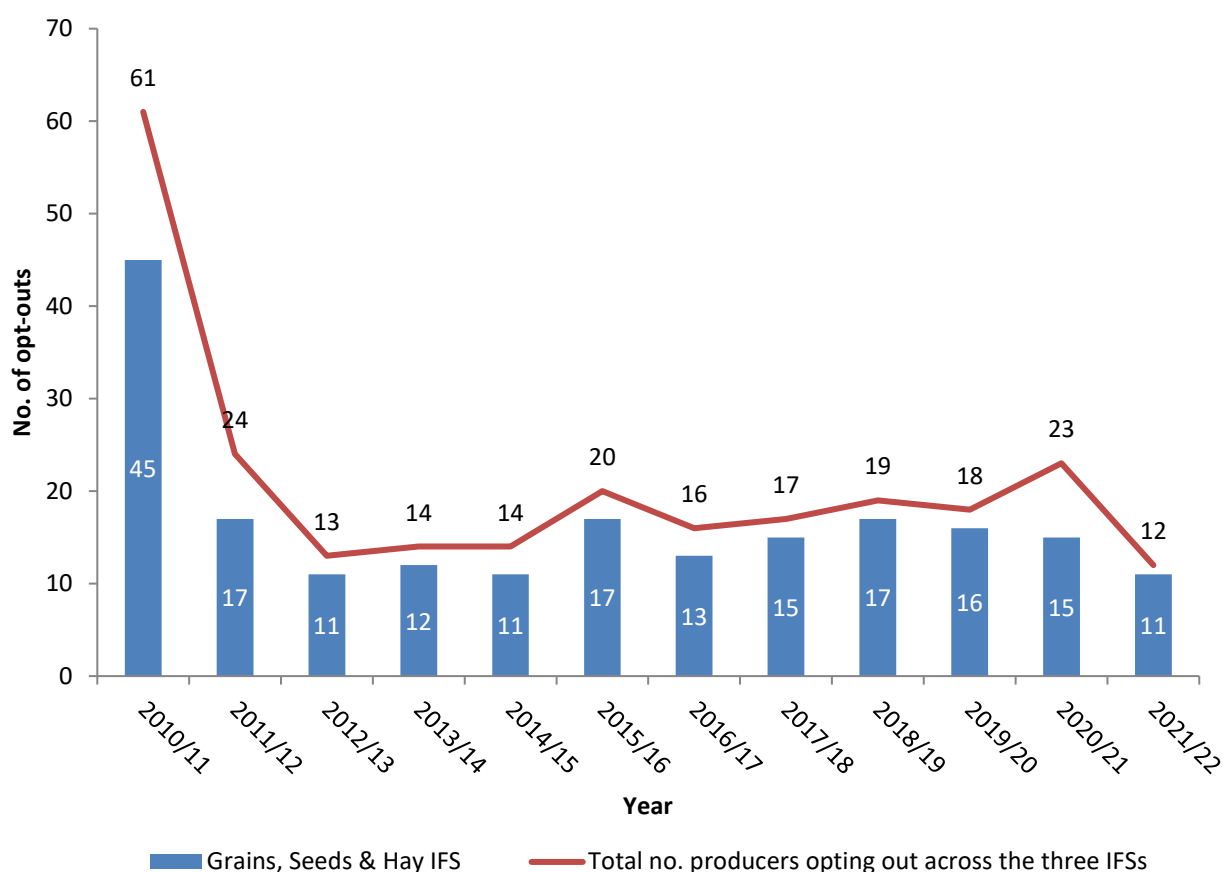


Figure 1 – Number of producers/growers opting out of Industry Funding Schemes since 2010

Collection rates

A total of \$5,129,950 in contributions to the Grains, Seeds and Hay Industry Funding Scheme was received during 2021/22. Of this amount, \$51,987 was collected from the sale of hay.

The amount of IFS contributions collected on the sale of grain/seed during 2021/22 was approximately \$3.7 million less than expected, based on the 2021 harvest estimate of just over 24 million tonne (GIWA, February 2022). During 2021/22, the IFS collected contributions on the sale of just over 20 million tonnes of grain/seed. This represents a collection rate of 85%. Action is being taken to follow-up on registered grain receivers that have not yet remitted grower contributions to DPIRD.



Image 8 – Paddocks of wheat

5. 2021/2022 approved biosecurity programs

Skeleton Weed Program

Skeleton weed (*Chondrilla juncea* L) is a weed of pastures, crops and native bush. It can reduce yields by competing with crops for moisture and nutrients, particularly nitrogen, due to its deep perennial root system. The Skeleton Weed Program is a coordinated program to prevent the weed from spreading.

The aim of the program is to prevent seed-set and movement of skeleton weed and, where feasible, to eradicate it from properties

Four key areas of activity are undertaken to help deliver the program aim:

1. Surveillance and searching to detect skeleton weed plants
2. Treatments to prevent seed set and/or destroy plants
3. Communication/extension to i) raise awareness of skeleton weed within the general farming community; and ii) help affected landholders understanding the impacts of skeleton weed and how to manage these
4. Audit/compliance to be certain program/legislated requirements regarding skeleton weed are being met.

In addition, research to ensure best practice control methods for skeleton weed and improve surveillance/detection methods is undertaken through a separate IFS-funded program.

The focus of the Skeleton Weed Program is to assist and work with landholders to eradicate skeleton weed. Seven Local Action Groups (LAGs), which receive funding from the IFS, are instrumental in this. The LAGs deliver many of the program's operational activities, whilst DPIRD continues as the compliance management authority.

Surveillance and searching

During the summer of 2021/22, more than 400,000 hectares of paddocks known to be infested with skeleton weed were searched. The purpose of this was to find and treat plants before they set seed and to map the locations of plants so they can be targeted for winter chemical treatment. Search assistance continued to be provided to landholders to encourage search activities to be undertaken and, therefore, provide a clear picture of the extent of the skeleton weed infestation in WA.

A further 10,000 hectares were surveyed using drones. Drone surveillance was targeted to areas at high-risk of skeleton weed infestation to locate new infestations before they become established. Improvements continue to be made to the image recognition technology as increasing numbers of skeleton weed images are collected to assist with the 'machine learning'.

A total of 59 newly infested properties were identified, whilst the weed was eradicated from 15 properties. Without a coordinated program to control the spread of the weed, skeleton weed would likely be much more abundant and widely established throughout the agricultural area of the State – a point that was highlighted in the 2020 program review.

Figure 2 identifies the sites within the WA agricultural area that are infested by skeleton weed at 30 June 2022.

Treatments

The total area of infested land treated during winter was 6000 hectares. Of this area, 3000 hectares were under an eradication regime and treated with picloram-based herbicide (i.e. Tordon®). The other 3000 hectares were classed as ‘heavily infested’³ and underwent whole-of-paddock control treatments with clopyralid (i.e. Lontrel®).

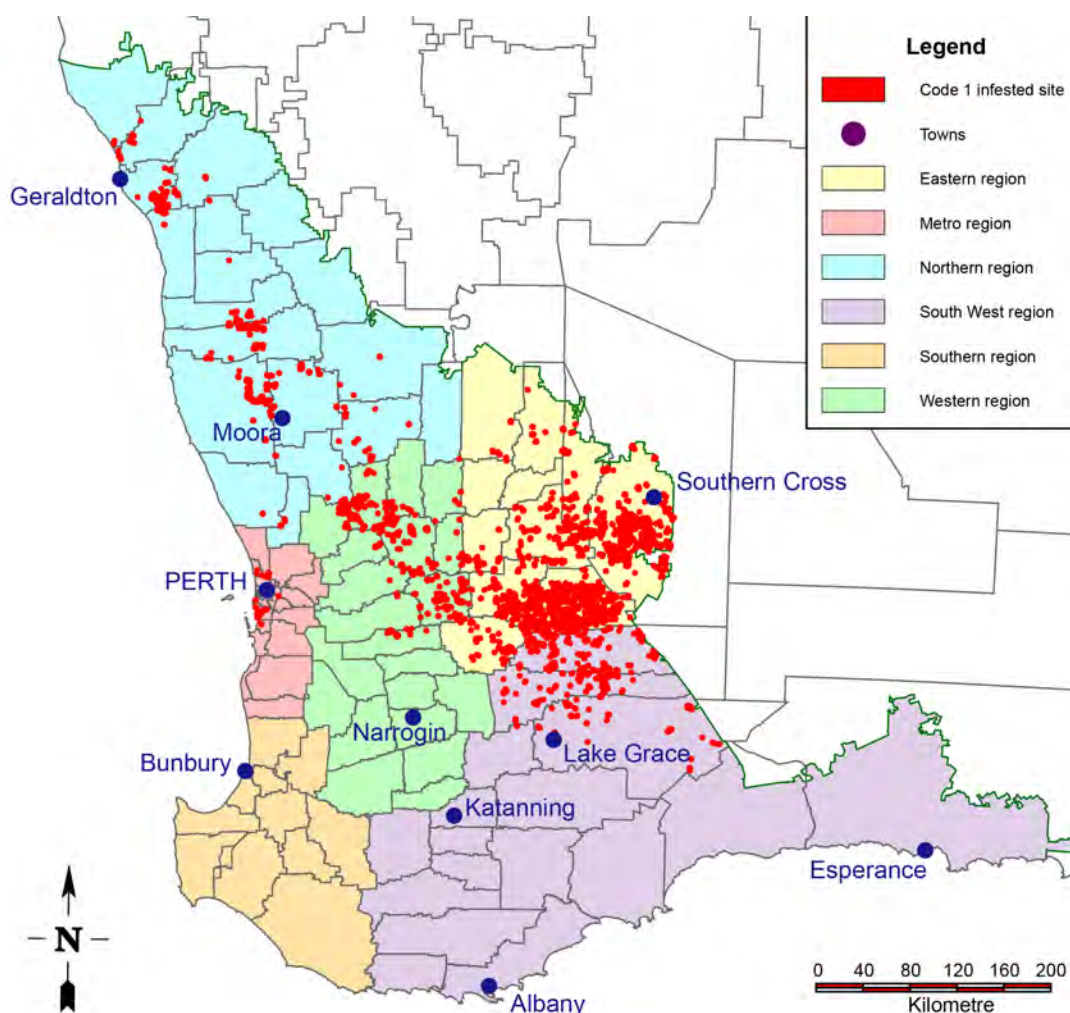


Figure 2 – Distribution of skeleton weed infestations in the agricultural area of Western Australia

³ Where a paddock is more than 10% infested by skeleton weed

Communication and extension

Like previous years, a strategic communication and extension campaign was undertaken to coincide with the start of the summer search season (mid-November 2021). This included regional radio announcements and interviews, media statements, social media and a story on ABC Rural. The program was also promoted at the Dowerin Machinery Field Days and Newdegate Machinery Field Days.

Other promotional and extension materials undertaken during the year included Landholder Information Packs, increased roadside signage, newsletter articles, and updates to the [Skeleton Weed in Western Australia: Management Guide](#).

Audit and compliance

As the focus of the program is to work with landholders, there are few significant compliance issues. During 2021/22, a total of 373 properties were audited to confirm the skeleton weed status following the summer searching. This resulted in 15 properties being declared free of skeleton weed. Overall, more than 25,000 hectares of paddocks were removed from the 'infested list'.

Expenditure

The costs of the 2021/22 Skeleton Weed Program are presented in Table 1.

Table 1 – Costs of the 2021/22 Skeleton Weed Program

Expenses	\$
Landholder searching subsidies	2,799,357
Local Action Group support	912,000
Employee expenses	797,167
Professional/contract services	225,933
Vehicles and DPIRD charges	101,171
Chemical	75,345
Repairs and maintenance	69,479
Consumables	38,515
Communications (i.e. mobile phones)	28,367
Advertising and promotion	13,525
Lease, rental and hire costs	3,438
Miscellaneous other	1,171
Licences, fees and registrations	254
Revenue for fee-for-service work	(155,987)
Total cost of program	4,909,735

The *Skeleton Weed Program 2022/23: Report to grain growers* provides a full report on the operations of the program. This can be accessed from the DPIRD Agriculture and Food website.

Bedstraw eradication program

Three-horned bedstraw (*Galium tricornutum*) is a competitive climbing plant. It can cause considerable yield loss in crops and its seeds are contaminants of fodder and grain. In WA, bedstraw is targeted for eradication – that is, any bedstraw plants found in the State must be destroyed.

The Grains, Seeds and Hay IFS continued to fund a program addressing bedstraw. The program included activities to eradicate the known bedstraw infestations in WA and surveillance to aid early detection of other potential bedstraw infestations.

The only known bedstraw infestations in WA are in seven small areas of bush (approximately nine hectares in total) on one property, following the release of two arable paddocks from quarantine in 2021/22.

During 2021/22, four of the bush areas completed the final year of the six-year eradication phase and have moved into the three-year release phase. The 'release phase' is three consecutive years with no bedstraw germination. During that time, activities on the quarantined areas continue to be restricted whilst chemical treatments are undertaken.

The remaining three bush areas remain under various stages of the eradication phase; however, no bedstraw plants were found on any of these areas during the reporting period. These bush areas have been fenced to exclude livestock, and they continue to receive chemical eradication treatments.

The program has been successful at preventing seed-set and reducing the soil-borne seed bank



Image 9 – Contractor applying bedstraw control treatment

Bedstraw surveillance

GrainCam technology was used to monitor for evidence of bedstraw post-eradication. The technology used image analysis to screen grain collected from the affected property's 2021 grain harvest. Three suspect seed detections were made; however, further investigations could not confirm the presence of bedstraw seeds. An intensive inspection regime will be undertaken on the paddocks where the suspect seeds originated.

In addition, a broad surveillance program was undertaken, funded by the IFS in partnership with Cooperative Bulk Handling (CBH).

A total of 6489 grain samples from the 2021 harvest were collected from 139 targeted sites across the wheatbelt and screened using CBH screening technology. The screening technology, which uses image analysis software, is used by CBH for the commercial grading of grain. The partnership between the IFS and CBH has allowed this technology to be used to screen grain for contamination with bedstraw seed.

No bedstraw was detected. At the current level of sampling there is a 90% probability that large infestations (>100 hectares) will be detected. However, as the cumulative number of samples screened increases each year, so does the confidence in the probability of the technology detecting a bedstraw infestation. Over the last eight years, more than 50,000 samples have been taken, giving a 90% probability of finding an infestation greater than about 40 hectares.

Early detection is the best strategy to quickly eliminate bedstraw infestations at a minimal cost

Expenditure

The costs of the 2021/22 Bedstraw Eradication Program are presented in Table 2.

Table 2 – Costs of the 2021/22 Bedstraw Eradication Program

Item	\$
Employee expenses	119,703
Professional services and contracts	67,180
Vehicles and DPIRD charges	12,382
Chemicals and consumables	4,109
Communications (e.g. mobile phones)	310
Total cost of program	\$203,684

The *Bedstraw Eradication 2021/22: Report to grain growers* (available online at the DPIRD Agriculture and Food website) provides a full report on the operations of the program for the 2021/22 financial year.

Research and development

Biological controls for skeleton weed

There are three biotypes of skeleton weed in WA – broad-leaved, narrow-leaved and intermediate. Because each have differing susceptibilities to the various biological control ('biocontrol') agents that are available, it is important to understand where the biotypes are located before selecting and releasing any biocontrol agents.

The aim of the skeleton weed biocontrol research project is to introduce appropriate biocontrol agents to reduce the impact of skeleton weed in WA. The first year of the project (2020/21) focused on:

- Identifying and mapping the skeleton weed biotypes found in WA
- Identifying biocontrol agents, and other pest and diseases of skeleton weed, present in WA; and
- Mapping the extent of skeleton weed rusts in WA and comparing these to those found in eastern Australia.

One-hundred and seventy-nine skeleton weed samples were collected from across the infested areas of WA. DNA analysis was undertaken by the CSIRO to determine the biotypes of the samples. This work found the narrow-leaved biotype present in the northern areas, the broad-leaved biotype in the eastern areas and a sporadic distribution of the intermediate biotype (Figure 3).

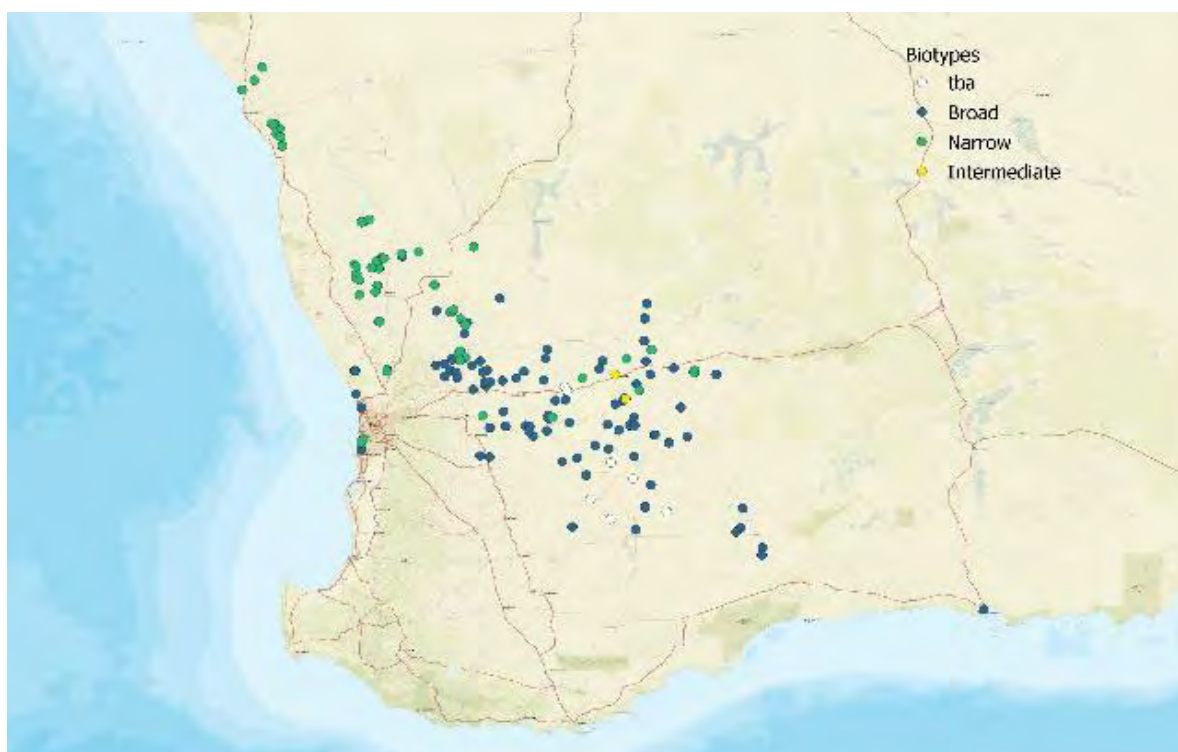


Figure 3 – Biotypes of skeleton weed found in 2021/22⁴

⁴ Batchelor, K., Hunter, G., and Campos, M. (2022) Skeleton weed biotypes in Western Australia. CSIRO.

The work also found one biocontrol agent already present in WA – a rust fungus that only attacks the narrow-leaved biotype. The distribution of the rust fungus does not cover the full range of the narrow-leaved biotype, meaning that there is potential to spread the rust to the uninfected populations of narrow-leaved skeleton weed.

No biocontrol agents for the broad-leaved biotype were found in WA. However, two biocontrol agents for this form of skeleton weed are established in eastern Australia – the gall midge and the skeleton weed root boring moth. Both are approved for release in Australia.

The next stage of the project, to be undertaken in 2022/23, will:

- Spread the rust fungus onto populations of skeleton weed that are known to be sensitive to the rust
- Test the sensitivity of the other biotypes to the rust fungus
- Test the potential of other biocontrol agents on the broad-leaved and intermediate skeleton weed biotypes and prepare introduction protocols and a rearing program for these agents.

The cost of the biocontrol research project in 2021/22 was \$90,122.

IFS research program

The overall aim of the research program is to provide the tools and technologies to stop the increase in the infestation of skeleton weed and three-horned bedstraw in WA. This will be done by reducing the number of new skeleton weed and bedstraw infestations and/or increasing the level of eradication.

There were three key areas of research undertaken during the year:

- Skeleton weed control: This project aims to provide better chemical and control recommendations
- Improving surveillance: This project will provide better surveillance for skeleton weed and three-horned bedstraw
- Innovation: This project is evaluating the feasibility of a) using spore traps to detect skeleton weed infestations; and b) microwave and electric discharge technologies to eradicate skeleton weed plants

Skeleton weed control

Skeleton weed can be more effectively controlled by using higher rates of herbicides. However, these rates must be registered and approved by the Australian Pesticides and Veterinary Medicines Authority (APVMA) to ensure that maximum residue levels are not exceeded.

In 2021/22, research was undertaken to gather data for consideration by the APVMA. The crop tolerance and levels of residues from high rates of 2,4-D amine, 2,4-D low volatile ester, clopyralid, picloram and picloram + 2,4-D were tested on pre-emergent wheat, barley and canola. The results indicate there is good scope to get higher rates of herbicide registered, which will support better skeleton weed control in cereal crops.

Work was also undertaken in several other areas:

- Testing the efficacy of eight herbicide treatments at a site where previous treatments had delivered poor results
- Capturing the growth and reproduction of skeleton weed plants on time lapse cameras; and testing the viability of skeleton weed seeds produced at different times of the year. This is providing good information that is being used to fine-tune the activities of the control program.

Improving surveillance

Surveillance using drones was less effective than last year with several infested paddocks not being detected. This appeared to be an issue with the detection model rather than the imagery, as the images showed the infestation reasonably clearly. Work is continuing, including the active collection of skeleton weed images to improve the analysis algorithms and aid 'machine learning'.

Work is also underway to build the models to apply drone surveillance to detect skeleton weed rosettes in autumn/winter. This work is looking promising.



Image 10 – GrainCam attached to a harvester, ready to take images of grain as it is being harvested and to record the time and GPS location of where bedstraw weeds are found

Innovation

Microwave technology was tested at different times of the year for different application lengths. This work showed that the best control of skeleton weed occurred when applied in April for 60 seconds or more. The planned work with electrical discharge technologies was not conducted as there were no machines available in WA during the year and importing the preferred RootWave hand-held device was impeded because of impacts of COVID-19.

Work was also done to develop high-precision GPS to map skeleton weed plants to an accuracy of 1-2 cm. This allows individual plants that have been treated with microwaves to be tracked over time to determine if any regrowth is due to plant recovery, new rosettes emerging from depth, or dormant buds on lateral roots.

Expenditure

The costs of the 2021/22 IFS research program are at Table 3.

Table 3 – Costs of the 2021/22 IFS research program

Item	\$
Employee expenses	195,382
Professional services and contracts	56,452
Vehicles and DPIRD charges	39,857
Consumables	8,765
Travel	7,169
Repairs and maintenance	5,967
Freight	3,923
Communications (e.g. mobile phones)	3,706
Other	2,000
Licences	1,350
Minor equipment	1,163
Fuel and chemicals	717
Revenue (IFS payment 2020/21)	(74,784)
Total cost of program	\$251,667

6. 2021/2022 financial details

The IFS finances are administered by the Director General of DPIRD through an agency special purpose account called the Grains, Seeds and Hay Industry Declared Pest Control and Compensation Account (the IFS Account). DPIRD manages these funds on behalf of the Committee and prepares financial reports, including the end of financial year statements.

- The balance of the IFS Account was \$6,196,184 at 30 June 2022.
- The total cost of the 2021/22 Skeleton Weed Program was \$5,021,103 and the Bedstraw Eradication Program cost \$203,684⁵.
- Industry contributions to the IFS totalling \$5,129,950 were received by DPIRD in 2021/22; however, \$6654 of this was reimbursed to growers that had opted out of the Scheme in the previous financial year.
- Interest applied to the IFS funds during 2021/22 amounted to \$34,301.
- The activities of the Committee resulted in expenditure of \$20,309.

Tables 4 and 5 contain the financial details for the 2021/22 Grains, Seeds and Hay IFS. Figure 4 identifies how the funds held in the IFS Account were used during the year.

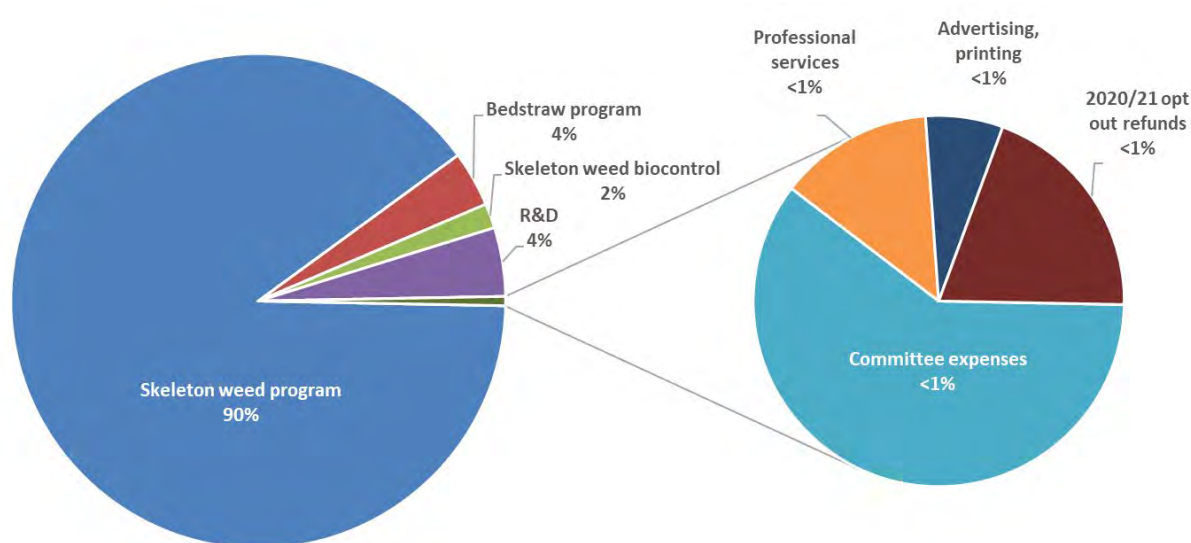


Figure 4 – Use of funds held in the Grains, Seeds and Hay IFS Account during 2021/22

⁵ Some of the costs of the 2021/22 programs were deducted from the Account during the 2022/23 financial year

Table 4 – Grains, Seeds and Hay IFS income and expenditure for 2021/22

Expenses	\$
Programs:	
Skeleton weed control	5,021,103
Bedstraw eradication	203,684
Skeleton weed biocontrol	90,122
Research and development	251,667
Other expenses:	
Board member fees	11,937
Board member travel	7,128
Professional services	4,550
Advertising and promotion	2,226
Meeting expenses (catering, venue hire)	1,217
Stationery and printing	58
Communications	27
2020/21 opt out refunds	6,654
Total expenses*	\$5,600,373
Income	
Contributions	5,129,950
Interest revenue	34,301
Total income	\$5,164,251
NET COST OF SERVICE	\$436,122

* Excludes costs of DPIRD support and financial accounting.

Table 5 – Balance sheet for the Grains, Seeds and Hay IFS at 30 June 2022

Balance sheet	Total (\$)
EQUITY at 30 June 2022	\$6,196,184

Note: the amounts shown in Table 4 for the skeleton weed and bedstraw programs are the total cost of the 2021/22 programs. Some of these costs were debited from the Account during the 2022/23 financial year. The balance sheet (Table 5) identifies the actual equity at 30 June 2022.

7. Direction for 2022/2023

The strategic direction of the Grains, Seeds and Hay IFS will be an important focus for the Committee in 2022/23. As part of its strategic planning process, the Committee will work with stakeholders to clarify the position of the IFS within the WA grains biosecurity decision-making structures. It will also work with the WA grains/seeds/hay industry to ensure robust and valid criteria are in place to help the Committee make decisions on where IFS funds should be used.

Another focus area for the upcoming year is IFS communications. With a comprehensive cross-IFS communications strategy now developed, it is time to put it into action. A concerted effort on IFS communications will build awareness and understanding of the IFS and role of the Committee, resulting in greater grower and industry engagement. Communications and engagement are important aspects of the work of the Committee – without the support of growers, the scheme would not be able to operate to support the industry's biosecurity.

In partnership with DPIRD, the Committee will continue to manage and monitor the programs it has in place to address skeleton weed and three-horned bedstraw. As the bedstraw eradication program comes to a conclusion, the Committee will work closely with DPIRD to document the learnings and translate these into a revised plan for managing any future bedstraw incursions.

2022/23 will also see the Committee continuing to address the recommendations from the review of the Skeleton Weed Program. With promising results so far on the various research and development areas, the Committee look forward to getting new and improved tools and technologies to growers to help them self-manage skeleton weed infestations.

The biennial meeting of the three IFS Committees is anticipated to be held during 2023. The joint meeting will provide a forum for the Committee to:

- share successes and insights
- discuss emerging IFS issues; and
- agree on future focus areas to be tackled collaboratively across the Committees.

The Committee will also action the recommendations from the review of the IFS regulations that are relevant to the Committee, and monitor how DPIRD addresses the recommendations relevant to it. Addressing these recommendations will be important to help ensure the Scheme is operating as effectively as it can be and that the IFS regulations remain relevant and appropriate in an ever-changing operating environment.

If regulatory amendments are required, the Committee anticipate providing input to these to make certain the changes will meet the needs of the WA grain/seed/hay industry and IFS contributors.

Industry feedback is critical to the Scheme's success. The Committee welcomes feedback and input to the Scheme, its programs and grains/seeds/hay industry issues in general

The Grains, Seeds and Hay IFS is industry-driven, with industry itself deciding if, when and to what extent the Scheme is used.

The Committee can be contacted at any time through its Executive Officer. The Committee is particularly keen to hear the industry's views on the biosecurity risks and opportunities.

Committee members are available to participate in industry forums, meetings and field days to discuss the Scheme and answer any questions from industry.



Appendix 1. Committee terms of reference

1. Act in good faith at all times, and without conflict of interest, to fairly and impartially represent the best interests of the industry concerned and the contributors to the Scheme.
2. Provide effective governance over the Scheme.
3. Discharge the functions conferred on the Management Committee by the *Biosecurity and Agriculture Management Act 2007* and the enabling Regulations, including but not necessarily limited to:
 - advising the Director General of the Department of Primary Industries and Regional Development on the administration of the prescribed account
 - recommending annually to the Minister for Agriculture and Food the area(s) of the State in which the Scheme should operate
 - recommending annually to the Minister for Agriculture and Food the rate or rates at which contributions are to be paid
 - approving programs and other measures to be implemented under the Scheme
 - approving payments from the prescribed account for compensation in respect of losses (as described in the regulations)
 - consulting annually with the industry for the purpose of ascertaining industry views on the operation of the Scheme and the performance by the committee of its functions
 - reporting at least annually to the Minister for Agriculture and Food on the operation and effectiveness of the Scheme, and any matters relating to the operation of the relevant regulations as the Minister specifies.
4. Undertake such other functions related to the operation of the Scheme as required.

Appendix 2

Management Committee membership from 1 July 2022

Name	Position	Expiry of term
Rod Birch	Chair	30 June 2024
Anne Wilkins	Deputy Chair	30 June 2024
Jules Alvaro	Member	30 June 2024
Michael Dagostino	Member	30 June 2025
Judith Foss	Member	30 June 2025
Peter Harkness	Member	30 June 2025
Hellene McTaggart	Member	30 June 2024