



Australian Government

Department of Health

Office of the Gene Technology Regulator

Licence for dealings involving an intentional release of a GMO into the environment

Licence No.: DIR 153

Licence holder: University of Queensland

Title: Limited and controlled release of sorghum genetically modified for grain quality traits

Issued: 25 July 2017

More information about the decision to issue this licence is contained in the Risk Assessment and Risk Management Plan prepared in connection with the assessment of the application for the licence. This document can be obtained from the [Office of the Gene Technology Regulator website](#) or by telephoning the Office on 1800 181 030.

Gene Technology Regulation in Australia

Australia's gene technology regulatory system operates as part of an integrated legislative framework. The *Gene Technology Act 2000* (Cth) and corresponding state and territory legislation form a substantial part of a nationally consistent regulatory system controlling activities involving genetically modified organisms (GMOs).

This licence is issued by the Gene Technology Regulator in accordance with the *Gene Technology Act 2000* and, as applicable, Corresponding State Law.

The Gene Technology Regulator is required to consult with, and take into account advice from, a range of key stakeholders, including other regulatory authorities, on risks to human health and safety and to the environment in assessing applications for dealings involving the intentional release of GMOs into the Australian environment.

Other agencies that also regulate GMOs or GM products include Food Standards Australia New Zealand, Australian Pesticides and Veterinary Medicines Authority, Therapeutic Goods Administration, National Industrial Chemicals Notification and Assessment Scheme and the Department of Agriculture and Water Resources. Dealings conducted under any licence issued by the Regulator may also be subject to regulation by one or more of these agencies. It is recommended that the licence holder consult the relevant agency (or agencies) about their regulatory requirements.

Dealings permitted by this licence may also be subject to the operation of State legislation declaring areas to be GM, GM free, or both, for marketing purposes.

The licence authorises the licence holder and persons covered by the licence to conduct specified dealings with the genetically modified organism(s) listed in Attachment A of this licence.

Note about where dealings with GMOs are being undertaken pursuant to this licence

Information about where the GMOs have been planted pursuant to this licence can be accessed on the [OGTR website](#).

Section 1 Interpretations and definitions

1. In this licence:

- (a) unless defined otherwise, words and phrases used have the same meaning as they do in the Act and the Regulations;
- (b) words importing a gender include any other gender;
- (c) words in the singular include the plural and words in the plural include the singular;
- (d) words importing persons include a partnership and a body whether corporate or otherwise;
- (e) references to any statute or other legislation (whether primary or subordinate) are a reference to a statute or other legislation of the Commonwealth of Australia as amended or replaced from time to time and equivalent provisions, if any, in corresponding State law, unless the contrary intention appears;
- (f) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form in respect of that word has a corresponding meaning;
- (g) specific conditions prevail over standard conditions to the extent of any inconsistency.

2. In this licence:

'Act' means the *Gene Technology Act 2000* (Commonwealth) or the corresponding State law under which this licence is issued.

'Clean' (or **'Cleaned'**) means the removal and/or Destruction of the GMOs, to the reasonable satisfaction of the Regulator.

'Contingency Plan' means a written plan detailing measures to be taken in the event of the unintended presence of the GMOs outside an area that must be inspected. A Contingency Plan must include procedures to:

- (a) ensure the Regulator is notified immediately if the licence holder becomes aware of the event; and
- (b) recover and/or Destroy the GMOs to the reasonable satisfaction of the Regulator; and
- (c) inspect for and Destroy any Volunteers that may exist as a result of the event to the reasonable satisfaction of the Regulator.

'Destroy', (or **'Destroyed'** or **'Destruction'**) means, as the case requires, killed by one or more of the following methods:

- (a) uprooting;
- (b) treatment with herbicide;
- (c) burning/incineration;
- (d) root cutting and mulching;
- (e) crushing or grinding of seed;
- (f) autoclaving; or
- (g) a method approved in writing by the Regulator.

Note: 'As the case requires' has the effect that, depending on the circumstances, one or more of these techniques may not be appropriate. For example, in the case of plants with mature seed heads still attached, treatment with herbicide would not be appropriate as it would not destroy viable seeds.

'Equipment' includes, but is not limited to, seeders, harvesters, threshers, transport equipment (e.g. bags, containers, trucks), clothing and tools.

‘Flowering’ is taken to begin when any plant of the class of plants referred to in a particular condition first flowers, and is taken to end when all plants in the class of plants no longer have flowers.

‘GM’ means genetically modified.

‘GMOs’ means the genetically modified organisms that are the subject of the dealings authorised by this licence. GMOs include live plants, root stock that is able to grow into live plants, and viable seed.

‘Logbook’ means a written or electronic record containing information required to be collected and maintained by this licence and which is able to be presented to the OGTR on request.

‘Monitoring Zone’ means an area of land extending outwards:

- (a) at least 100 m in all directions from the outer edge of a Planting Area if all GM Sorghum is bagged while Flowering (Figure 1A); or
- (b) at least 600 m in all directions from the outer edge of a Planting Area if GM Sorghum is not bagged while Flowering (Figure 1B).

‘OGTR’ means the Office of the Gene Technology Regulator.

‘Personal Information’ means information or an opinion about an identified individual, or an individual who is reasonably identifiable:

- (a) whether the information or opinion is true or not; and
- (b) whether the information or opinion is recorded in a material form or not.

‘Planting Area’ means an area of land where the GMOs and non-GM Sorghum are planted and grown pursuant to this licence.

‘Plant Material’ means any part of the GM or non-GM Sorghum plants grown at a Planting Area, whether viable or not, or any product of these plants.

‘Post Harvest Buffer Zone’ means an area of land extending outwards at least 10 m in all directions from the outer edge of a Planting Area after the Planting Area has been harvested (Figure 1C).

‘Regulations’ means the Gene Technology Regulations 2001(Commonwealth) or the corresponding State law under which this licence is issued.

‘Regulator’ means the Gene Technology Regulator.

‘Related Species’ means plants from the section *Eusorghum* of the genus *Sorghum* excluding Sorghum.

‘Sign-off’ means a notice in writing from the Regulator, in respect of an area, that post-harvest obligations no longer apply in respect of that area.

‘Sorghum’ means plants of the subspecies *Sorghum bicolor* (L.) Moench subsp. *bicolor*.

‘Tillage’ means the use of any technique to disturb the soil.

‘Volunteers’ means GM or non-GM Sorghum plants that have not been intentionally grown.

‘Waterways’ means all permanent natural waterways and man-made waterways that flow into natural waterways.

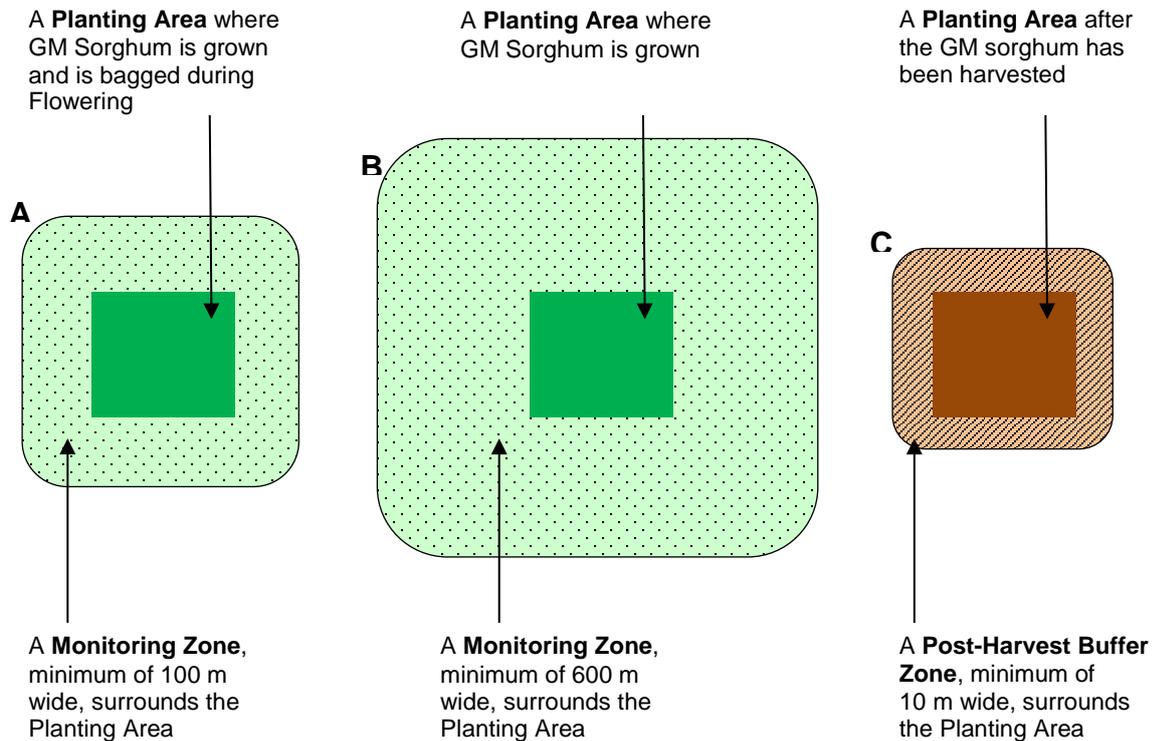


Figure 1. Diagrams (not to scale) showing the relationships between Planting Areas, Monitoring Zones and Post-Harvest Buffer Zones.

- A:** diagram where pollination bags are used while the GMOs are flowering;
B: diagram without pollination bags while the GMOs are flowering;
C: diagram after the GMOs are harvested.

Section 2 General conditions and obligations

3. This licence does not authorise dealings with GMOs that are otherwise prohibited as a result of the operation of State legislation declaring areas to be GM, GM free, or both, for marketing purposes.
4. This licence remains in force until it is suspended, cancelled or surrendered. No dealings with GMOs are authorised during any period of suspension.
5. The holder of this licence ('the licence holder') is the University of Queensland.
6. The persons covered by this licence are the licence holder and employees, agents or contractors of the licence holder and other persons who are, or have been, engaged or otherwise authorised by the licence holder to undertake any activity in connection with the dealings authorised by this licence.
7. The dealings authorised by this licence are to conduct experiments with the GMOs, breed, propagate and grow the GMOs, use the GMOs in the course of manufacture of a thing that is not a GMO, transport and dispose of the GMOs, and possession, supply or use of the GMOs in the course of any of these dealings.

Obligations of the Licence Holder

8. The licence holder must notify the Regulator in writing as soon as practically possible if any of the contact details of the project supervisor change from those notified in the licence application or subsequently.

Note: please address correspondence to ogtr.applications@health.gov.au.

Prior to issuing a licence, the Regulator considers suitability of the applicant to hold a licence. The following conditions address ongoing suitability of the licence holder.

9. The licence holder must, at all times, remain an accredited organisation in accordance with the Act and must comply with its instrument of accreditation.
10. The licence holder must:
- (a) inform the Regulator immediately in writing, of:
 - i. any relevant conviction of the licence holder occurring after the commencement of this licence; and
 - ii. any revocation or suspension of a licence or permit held by the licence holder under a law of the Australian Government, a State or a foreign country, being a law relating to the health and safety of people or the environment; and
 - iii. any event or circumstances occurring after the commencement of this licence that would affect the capacity of the holder of this licence to meet the conditions in it; and
 - (b) provide any information related to the licence holder's ongoing suitability to hold a licence, if requested, within the stipulated timeframe.
11. The licence holder must be able to access and control the Planting Areas, Post-Harvest Buffer Zones, Monitoring Zones and approved facilities (if any) to the extent necessary to comply with this licence, for the duration of the licence.

Conditions 12-16 seek to ensure that persons conducting the dealings are aware of the licence conditions and appropriate processes are in place to inform people of their obligations.

12. Prior to conducting any dealings with the GMOs, the licence holder must provide to the Regulator:
- (a) the names of all organisations and persons or functions/positions of the persons who will be covered by the licence, with a description of their responsibilities; and
Note: Examples of functions or positions are 'project supervisor', 'site manager', 'farm labourer' etc.
 - (b) detail of how the persons covered by the licence will be informed of licence conditions; and
 - (c) detail of how the licence holder will access and control Planting Areas, Post-Harvest Buffer Zones, Monitoring Zones and approved facilities (if any) for the duration of the licence; and
Note: this may include a description of any contracts, agreements, or other enforceable arrangements with third parties.
 - (d) written methodology to reliably detect the GMOs or the presence of the genetic modifications in a recipient organism, and to distinguish between categories of GMOs approved for release; and
 - (e) a Contingency Plan to respond to inadvertent presence of the GMOs outside an area that must be inspected.

13. Any changes to the information provided under the immediately preceding condition must be communicated in writing to the Regulator within 14 days of the changes occurring.

14. The licence holder must inform any person covered by this licence, to whom a particular condition of the licence applies, of the following:

- (a) the particular condition (including any variations of it); and
- (b) the cancellation or suspension of the licence; and
- (c) the surrender of the licence.

15. The licence holder must not permit a person covered by this licence to conduct any dealing with the GMOs unless:

- (a) the person has been informed of any applicable licence conditions, including any variation of them; and
- (b) the licence holder has obtained from the person a signed and dated statement that the person:
 - i. has been informed by the licence holder of the licence conditions including any variation of them; and
 - ii. has understood and agreed to be bound by the licence conditions, or variation.

16. The licence holder must:

- (a) inform the persons covered by this licence that any Personal Information relevant to the administration and/or enforcement of the licence may be released to the Regulator; and
- (b) provide the Regulator, if requested, with copies of the signed and dated statements referred to in the immediately preceding condition.

Provision of new information to the Regulator

Licence conditions are based on the risk assessment and risk management plan developed in relation to the application using information available at the time of assessment. The following condition requires that any new information that may affect the risk assessment is communicated to the Regulator.

17. The licence holder must inform the Regulator if the licence holder becomes aware of:

- (a) additional information as to any risks to the health and safety of people, or to the environment, associated with the dealings authorised by the licence; or
- (b) any contraventions of the licence by a person covered by the licence; or
- (c) any unintended effects of the dealings authorised by the licence.

Note: The Act requires, for the purposes of the above condition, that:

- (a) *the licence holder will be taken to have become aware of additional information of a kind mentioned in paragraph 17(a) if he or she was reckless as to whether such information existed; and*
- (b) *the licence holder will be taken to have become aware of contraventions, or unintended effects, of a kind mentioned in paragraph 17(b) or 17(c) if he or she was reckless as to whether such contraventions had occurred, or such unintended effects existed.*

Note: Examples of information that must be reported to the Regulator include any health impacts observed during the proposed poultry feeding trial, and any reports of allergic reactions in people working with or in close proximity to the GM sorghum.

Note: Contraventions of the licence may occur through the action or inaction of a person. For example if it is a condition of the licence that volunteers are destroyed prior to flowering and a volunteer flowers, then the person responsible for controlling volunteers will have contravened that licence condition.

18. If the licence holder is required to inform the Regulator under the immediately preceding condition, the Regulator must be informed without delay.

Note: An example of informing without delay is contact made within a day of the incident via the OGTR free call phone number 1800 181 030, which provides emergency numbers for incidents that occur out of business hours. Notification without delay will allow the OGTR to conduct a risk assessment on the incident and attend the location if required.

19. If the licence holder informs the Regulator under the immediately preceding condition and the Regulator requests further information, such information must be provided in a manner, and within the time period, stipulated by the Regulator.

Obligations of persons covered by the licence

20. Persons covered by this licence must not deal with the GMOs except as expressly permitted by this licence.

21. If a person is authorised by this licence to deal with the GMOs and a particular condition of this licence applies to the dealing by that person, the person must allow the Regulator, or a person authorised by the Regulator, to enter premises where the dealing is being undertaken, for the purposes of auditing or monitoring the dealing.

Section 3 Limits and control measures

Limits on the release

The following licence conditions maintain the risk assessment context within which the application was assessed, by imposing limits on where and when the GMOs may be grown, and on other activities that can be undertaken.

22. The only plants that may be intentionally grown at a Planting Area are:

- (a) the GMOs covered by this licence as described in Attachment A of the licence;
- (b) non-GM Sorghum plants; and
- (c) plants approved in writing by the Regulator.

23. Planting and growing of the GMOs may only occur within the following limits:

Period	Maximum number of Planting Areas	Maximum combined size of Planting Areas	Local Government Areas in which Planting Areas may be located
October 2017 – June 2018	1	1 ha	Brisbane City, Goondiwindi, Lockyer Valley, Redland City, Somerset, Southern Downs, South Burnett, Toowoomba
July 2018 – June 2019	4	5 ha	
July 2019 – June 2020	4	5 ha	

24. Subject to Condition 25, Plant Material must not be used, sold or otherwise disposed of for any purpose which would involve or result in its use as food for humans or feed for animals.

25. Non-viable products derived from the GMOs may be fed to poultry for experimental purposes, subject to those experiments being approved by an Animal Ethics Committee operating under *The Australian Code for the Care and Use of Animals for Scientific Purposes*.

Containment measures

The following licence conditions maintain the risk assessment context within which the application was assessed by restricting spread and persistence of the GMOs.

Pollen and seed dispersal during cultivation

26. The outer edge of any Planting Area must be at least 100 m away from Waterways.

27. Any extreme weather event that is expected to affect or has already affected a Planting Area or associated areas, while the GMOs are growing or while the Planting Area is subject to inspection

requirements, must be notified in writing to the Regulator as soon as practically and reasonably possible.

Note: The Contingency Plan must be implemented if the GMOs are detected outside areas under inspection (Condition 49).

28. Non-GM Sorghum plants grown in a Planting Area must be handled as if they were the GMOs.

29. Rodents within the Planting Area must be controlled by trapping and/or baiting from at least 7 days prior to planting the GMOs until at least 60 days after the GMOs are harvested or Destroyed.

30. For each Planting Area, one of the following measures to restrict seed dispersal by birds must be adopted:

- (a) enclose the Planting Area in bird netting that is capable of excluding birds from the beginning of GM sorghum seed development until at least 60 days after the GMOs are harvested or Destroyed; or
- (b) enclose the Planting Area in bird netting that is capable of excluding birds from the beginning of GM Sorghum seed development until the day of harvest, and from this point until at least 60 days after the GMOs are harvested or Destroyed, either equip the Planting Area with bird scarers or re-enclose the Planting Area in bird netting; or
- (c) enclose all GM Sorghum heads in bird-proof bags that are capable of excluding birds from the beginning of GM Sorghum seed development until the day of harvest, and from this point until at least 60 days after the GMOs are harvested or Destroyed, equip the Planting Area with bird scarers.

Note: If bird scarers are used, the licence holder should select devices that are expected to deter the main seed eating bird species present in the vicinity of the Planting Area.

31. For each Planting Area, one of the following measures to restrict seed dispersal by animals must be adopted:

- (a) enclose the Planting Area in bird netting that is capable of excluding livestock and other large animals from prior to planting the GMOs until at least 60 days after the GMOs are harvested or Destroyed; or
- (b) surround the Planting Area with a fence that is capable of excluding livestock and other large animals from prior to planting the GMOs until at least 60 days after the GMOs are harvested or Destroyed.

32. While bird netting or a fence are required under either of the two immediately preceding conditions, the bird netting or fence must be inspected for damage at least once every 35 days, and if damage is found, must be repaired as soon as practicable.

33. For each Planting Area, one of the following measures to restrict pollen flow must be adopted:

- (a) enclose all GM Sorghum panicles in pollination bags that are impermeable to pollen and weather resistant from at least 10 days prior to the expected commencement of Flowering and until at least 10 days after the GMOs have finished Flowering, and surround the Planting Area with a Monitoring Zone of at least 100 m (Figure 1A); or
- (b) surround the Planting Area with a Monitoring Zone of at least 600 m (Figure 1B).

Note: If pollination bags will not be used, there is an early notification requirement (Condition 52(a)).

34. Monitoring Zones must be maintained in a manner that enables identification of Sorghum or Related Species.

*Note: An example of an area that does **not** enable identification of Sorghum or Related Species is an area planted to a closed-canopy crop that grows simultaneously with the GMOs, and grows to a height that is comparable to, or taller than, Sorghum.*

35. While the GMOs are growing in a Planting Area, inspections must be conducted by people trained to recognise Sorghum and Related Species, and actions taken as follows:

Area	Period of inspection	Inspection frequency	Inspect for	Action
(a) Planting Area	First inspection must occur at least 10 days prior to the expected commencement of Flowering of any GMOs*, and inspections must continue until all GMOs in the Planting Area have finished Flowering	At least once every 14 days	Related Species	Destroy before Flowering or prevent from Flowering simultaneously with the GMOs
(b) Monitoring Zone	First inspection must occur at least 10 days prior to the expected commencement of Flowering of any GMOs*, and inspections must continue until all GMOs in the Planting Area have finished Flowering	At least once every 14 days	Sorghum and Related Species	Destroy before Flowering or prevent from Flowering simultaneously with the GMOs
(c) Pollination bags (if used)	While pollination bags are in place	At least once every 14 days	Damage that may permit pollen to escape	Repair or replace as soon as practicable
(d) Bird proof bags (if used)	While bird proof bags are in place	At least once every 14 days	Damage that may permit birds to access seeds	Repair or replace as soon as practicable

**Condition 52(b) requires the licence holder to provide information to the Regulator on the expected flowering period, however the inspection period should be based on the observed development of the GMOs, so that inspections commence prior to flowering of any GMOs.*

Note: Details of any inspection activity must be recorded in a Logbook as detailed in Condition 52(e).

36. Equipment used in connection with the GMOs must be Cleaned as soon as practicable and before use for any other purpose.

37. GMOs planted in a Planting Area must be harvested or Destroyed within 6 months of planting.

38. If the GMOs planted in a Planting Area are Destroyed, they are taken to have been harvested for the purposes of this licence and all conditions applying to post-harvest apply equally to post-Destruction.

39. Harvested GM seed not required for experimentation or future planting must be Destroyed as soon as practicable.

Processing or experimentation with GMOs

40. If threshing or processing of GM seed is not conducted under a Notifiable Low Risk Dealings (NLRD) authorisation, such activities may only be undertaken within:

- (a) a Planting Area; or
- (b) a facility approved in writing by the Regulator.

Note: Dealings conducted under a NLRD authorisation must be assessed by an Institutional Biosafety Committee before commencement, must comply with the requirements of the Regulations, and are not subject to the conditions of this licence.

41. If experimentation or analysis with the GMOs is not conducted under a NLRD authorisation, such activities may only be undertaken within:

- (a) a Planting Area prior to harvest or during harvest; or
- (b) a facility approved in writing by the Regulator.

42. Within a facility approved under either of the two immediately preceding conditions, any area that is used for threshing, processing, experimentation or analysis of the GMOs must be Cleaned as soon as practicable and before use for any other purpose.

Transport or storage of the GMOs

43. If transport or storage of the GMOs is not conducted under a NLRD authorisation, such activities must:

- (a) only occur to the extent necessary to conduct the dealings permitted by this licence or other valid authorisation; and
- (b) be in accordance with the Regulator’s *Guidelines for the Transport, Storage and Disposal of GMOs* for PC2 GM plants as current at the time of transportation or storage; and
- (c) comply with all other conditions of this licence.

Note: Condition 15 requires signed statements for persons transporting or disposing of the GMOs.

44. Methods and procedures used to transport GMOs must be recorded, and must be provided to the Regulator, if requested.

Note: The Contingency Plan must be implemented if the GMOs are detected outside areas under inspection (Condition 50).

Persistence of the GMOs

45. After harvest of GMOs in a Planting Area, the Planting Area must be surrounded by a Post-Harvest Buffer Zone of at least 10 m.

46. After harvest of GMOs in a Planting Area, the Planting Area and associated areas of land must be inspected by people trained to recognise Sorghum. Inspections must cover the entirety of areas to be inspected. Actions must be taken as follows:

Area of land	Period of inspection	Inspection frequency	Inspect for	Action
(a) Planting Area (b) Post-Harvest Buffer Zone (c) Any other area where GMOs have dispersed during planting, growing or harvesting (d) Any other area used to Clean Equipment used in connection with the GMOs (e) Any other area used to Destroy GMOs	From the day of completion of harvest or Destruction of GMOs planted in the Planting Area, until: i. the area is replanted with the GMOs; or ii. the Regulator has issued a Sign-off for the area.	At least once every 35 days	Volunteers	Destroy before Flowering

47. Details of any inspection activity must be recorded in a Logbook and must include:

- (a) date of the inspections;
- (b) name of the person(s) conducting the inspections;
- (c) details of the experience, training or qualification that enables the person(s) to recognise Sorghum and/or Related Species, if not already recorded in the logbook;
- (d) details of areas inspected including current land use;
- (e) details of the developmental stage of the GMOs while they are being grown;
- (f) details of any post-harvest rainfall events, including measurements at or near the area, or any irrigation events;

- (g) for post-harvest areas, details of any post-harvest crops and any recent management practices applied (including Tillage events)

Note: this may include spraying or maintenance measures used to facilitate inspections for Volunteers

- (h) details of any Volunteers observed during post-harvest inspections or land-management activities, including number, developmental stage and approximate position of the Volunteers within each area inspected[⌘];
- (i) date(s) and method(s) of Destruction or of preventing Flowering simultaneously with the GMOs of any Sorghum, Related Species or Volunteers;
- (j) details of any damage and any repairs to the bird netting or fence surrounding the Planting Area, while the bird netting or fence are required; and
- (k) details of rodent control methods used and any evidence of rodent activity, while rodent control methods are required.

[⌘] *Examples of acceptable ways to record the positional information for Volunteers in the Logbook include:*

- *descriptive text*
- *marking on a diagram*
- *indicating grid references on corresponding map/sketch*

Note: Details of Inspection activities must be provided to the Regulator (Condition 52(e)).

48. While post-harvest inspection requirements apply to a Planting Area, Post-Harvest Buffer Zone and any associated areas:

- (a) the area must be maintained in a manner appropriate to allow identification of Volunteers;
- (b) any Tillage of the area must be to a depth no greater than the depth of sowing of the GMOs;
- (c) the area may not be grazed by livestock; and
- (d) no plants may intentionally be grown in the area unless the plants are:
 - i. the GMOs or non-GM Sorghum, planted in accordance with the conditions of this licence; or
 - ii. agreed to in writing by the Regulator.

49. Prior to an application for Sign-off, a Planting Area must be Tilled and irrigated, with both the Tillage and the irrigation occurring in the October or November following harvest of the Planting Area.

Note: A period of natural rainfall may be taken as irrigation only with the agreement of the Regulator. Evidence (such as rainfall measurements, photos etc.) that the rainfall has been sufficient to promote germination should be provided.

Contingency plan

50. If any unintentional presence of the GMOs is detected outside the areas requiring inspection, the Contingency Plan must be implemented.

Section 4 Sign off

51. The licence holder may make written application to the Regulator that planting restrictions and inspection requirements no longer apply to a Planting Area and associated areas if:

- (a) all post-harvest inspection activities have been conducted for at least 12 months on these areas;

- (b) conditions have been conducive for germination and detection; and
- (c) no Volunteers have occurred on these areas in the most recent six month inspection period.

Note: The Regulator will take into account the management and inspection history for the Planting Area and associated areas, including post-harvest crops planted (if any), Tillage, irrigation, rainfall, application of herbicide and occurrence of Volunteers, in deciding whether or not further inspections are required to manage persistence of the GMOs.

Section 5 Reporting and documentation

The following licence conditions are imposed to demonstrate compliance with other conditions, facilitate monitoring of compliance by staff of the OGTR, and emphasise appropriate selection of the Planting Area.

52. Notifications must be sent to the Regulator as follows:

Notice	Content of notice	Timeframe
(a) Early Notification for planting where pollination bags will not be used	<ul style="list-style-type: none"> i. Details of the Planting Area including size, the local government area, GPS coordinates, a street address or other directions and a diagrammatical representation of the site (eg Google Maps) ii. Date on which the GMOs will be planted iii. Details on how inspections of the Monitoring Zone will be managed, including strategies for the detection and destruction of Sorghum or Related Species 	At least 30 days prior to each planting where pollination bags will not be used (Condition 33(b) applies).
(b) Intention to Plant	<ul style="list-style-type: none"> i. Details of the Planting Area including size, the local government area, GPS coordinates, a street address or other directions and a diagrammatical representation of the site (eg Google Maps) ii. Identity of the GMOs to be planted at the Planting Area (eg lines or construct details) iii. Date on which the GMOs will be planted iv. Period when the GMOs are expected to Flower v. Period when harvesting is expected to commence vi. How all areas requiring post-harvest inspections are intended to be used until sign-off, including the proposed post-harvest crop(s), if any vii. Details on how inspection activities will be managed, including strategies for the detection and destruction of Volunteers, Sorghum or Related Species viii. History of how the site has been used for the previous two years 	At least 7 days prior to each planting (to be updated immediately if the notified details change)
(c) Planting	<ul style="list-style-type: none"> i. Actual date(s) of planting the GMOs ii. Any changes to the details provided under part (b) of this condition. 	Within 7 days of any planting
(d) Harvest	Actual date(s) of harvesting or Destroying the GMOs.	Within 7 days of commencement of any harvesting. If harvesting is ongoing when the notification is sent, another notification must be sent within 7 days of completion of harvesting.
(e) Inspection activities	Information recorded in a Logbook as per the inspection requirements (Conditions 32, 35, 46 and 47).	Within 35 days of inspection

Note: Other reports and documents that may need to be sent to the Regulator are listed in Attachment B.

DIR No: 153

Full Title: Limited and controlled release of sorghum genetically modified for grain quality traits

Organisation Details

Postal address: The University of Queensland
St Lucia
QLD 4072

Phone No: (07) 3365 1111

IBC Details

IBC Name: The University of Queensland Institutional Biosafety Committee

GMO Description

GMOs covered by this licence:

Sorghum plants genetically modified by introduction of only the genes or genetic elements listed below.

Parent Organism:

Common Name: Sorghum

Scientific Name: *Sorghum bicolor* subspecies *bicolor*

Modified traits:

Categories: Composition – animal nutrition
Yield
Selectable marker – antibiotic resistance

Description:

Sorghum plants have been genetically modified for increased grain protein content, increased grain protein digestibility, increased grain size and/or a larger number of grains. Up to 42 lines of GM sorghum generated by biolistic transformation are authorised for release.

Each GM sorghum line contains one of the introduced genetic elements relating to grain traits that are listed in Table 1 and also the antibiotic resistance marker gene listed in Table 2. The introduced regulatory sequences are listed in Table 3.

GMOs generated by conventional breeding between any two GM sorghum lines are also authorised for release.

Purpose of the dealings with the GMOs:

The purpose of the release is to assess the agronomic characteristics, yield and grain quality of the GM sorghum plants under field conditions. A poultry feeding trial may also be conducted to assess nutritional value of the GM sorghum. The GM sorghum is not permitted to be used for human food or animal feed except in the proposed poultry feeding trial.

Commercial confidential information (CCI)

Some details of the genetic elements introduced into the GM sorghum lines were declared CCI under Section 185 of the *Gene Technology Act 2000*.

Table 1. Introduced genetic elements relating to grain traits in the GM sorghum lines

Genetic element description	Full name of gene	Source of gene	No. lines containing genetic element
Kafirin gene modified to add ten proteolytic sites	CCI	<i>Sorghum bicolor</i>	Up to 6
Gene silencing construct containing fragment of foldase enzyme gene	CCI	<i>Sorghum bicolor</i>	Up to 6
Gene silencing construct containing fragment of GP1 membrane protein gene	CCI	<i>Sorghum bicolor</i>	Up to 5
Gene silencing construct containing fragment of GP2 membrane protein gene	CCI	<i>Sorghum bicolor</i>	Up to 5
Gene silencing construct containing fragment of GP3 membrane protein gene	CCI	<i>Sorghum bicolor</i>	Up to 5
Truncated version of GP1 membrane protein gene	CCI	<i>Sorghum bicolor</i>	Up to 5
Truncated version of GP2 membrane protein gene	CCI	<i>Sorghum bicolor</i>	Up to 5
Truncated version of GP3 membrane protein gene	CCI	<i>Sorghum bicolor</i>	Up to 5

Table 2. Introduced antibiotic resistance marker gene in the GM sorghum lines

Genetic element	Full name of gene	Source of gene	No. lines containing genetic element
<i>nptII</i> gene	<i>neomycin phosphotransferase type II</i> gene	<i>Escherichia coli</i>	All

Table 3. Introduced regulatory sequences in the GM sorghum lines

Regulatory sequence	Source
Kafirin promoter and signal peptide	<i>Sorghum bicolor</i>
<i>ubi1</i> promoter	<i>Zea mays</i>
<i>nos</i> terminator	<i>Agrobacterium tumefaciens</i>

ATTACHMENT B

Checklist of documents that must be sent to the Regulator:

When	What	Condition	Timeframe of reporting
Prior to conducting any dealings	Details of persons covered	12 (a)	
	Plan to inform people covered by the licence	12 (b)	
	Plan to ensure control and access to the Site	12 (c)	
	Detection methodology	12 (d)	
	Contingency plan	12 (e)	
Prior to planting	Early notification for planting where pollination bags will not be used	52 (a)	At least 30 days prior to relevant planting
	Intention to plant	52 (b)	At least 7 days prior to any planting
After planting	Planting at a Planting Area	52 (c)	Within 7 days of any planting
While growing	Inspections of fence or bird netting	32	Within 35 days of each inspection
	Inspections of Planting Area, Monitoring Zone, pollination bags (if used) and bird-proof bags (if used)	35	Within 35 days of each inspection
After harvest	Harvesting at a Planting Area	52 (d)	Within 7 days of harvesting
	Post-harvest inspections	46	Within 35 days of each inspection
Any time after issue of the licence	Any changes of the project supervisor contact details	8	As soon as practicable
	Any relevant conviction, any revocation, suspension or cancellation of a relevant permit or any circumstances that may affect compliance with licence conditions	10 (a)	Immediately, if occurs
	Any information relevant to on-going suitability	10 (b)	If and when requested
	Any changes to details provided under conditions 12(a) - 12(e)	13	Within 14 days of the changes
	Signed statements from persons covered under the licence	16 (b)	If and when requested
	Any additional information regarding health and safety of people and the environment, contraventions of this licence or any unintended effects of the dealings authorized by the licence	17	Without delay, after becoming aware
	Extreme weather conditions	27	As soon as practicable, if expected or occurs
	Methods and procedures for transport	44	If and when requested