



FORTUNE AGRIBUSINESS FUNDS MANAGEMENT

Singleton Horticulture Project

April 2021

HAZARDOUS MATERIAL MANAGEMENT

Preamble

The NT Government SecureNT references Hazardous Substances as:

A hazardous material is a product or substance that has the potential to harm your life, health, property or the environment. It can be a solid, liquid or a gas or a combination of these.

Hazardous materials come in many forms including regular household and pool cleaning products, industrial chemicals, pesticides, paints or gases.

The Northern Territory Fire and Rescue Service respond to any incidents that involve hazardous substances.

You should report all spills or leaks as a matter of urgency by dialling 000.

In the event of a spill you should take the following precautions:

- *isolate the spill*
- *contain where possible*
- *evacuate from the area*
- *treat first aid, seek medical advice*
- *notify authorities.*

If someone eats or swallows a household cleaning product or other hazardous substance call Poisons Information on 131 126 - available 24 hours a day, seven days a week.

Hazardous Material planned in the development and operations of the Singleton Horticultural Project (SHP) come under two categories:

1. Chemicals and Fertilisers, &
2. Fuels/Oils and other material.

1. Chemicals and Fertilisers

Plant growth requires input of water, sunlight, air, and nutrients. While climatic conditions are the major growth factor, irrigated horticultural production encourages plant growth through application of water and fertiliser for subsequent crop production.

Best practice production is to apply the appropriate amount at the right time of water and fertiliser application to maintain the plant in optimum condition. This is reflected in minimal plant stress and increased production, size, and quality of the crop.

Optimal irrigation management applies small volumes of water frequently (daily or every couple of days) through drip or undertree sprinkler application. The aim is to keep the rootzone of the plant at a consistent moisture levels rather than the stress that can be caused by flooding and/or water deprivation.

Fertiliser application through the irrigation water (Fertigation) is aimed to continually feed the plant with its required nutrients within the rootzone to keep the plant in best condition for production. Types of fertiliser are adjusted depending on the growth stage of the plant and nutrient requirements.

Where a top up of nutrient is required, foliar spray applications are conducted. This is also undertaken where some nutrients are better taken up by the plant leaves or fruitlets rather than through the plant roots.

Chemical application to plants consists of naturally occurring chemicals, such as plant hormones (auxins and gibberellins) and those that are plant protectants to target pests, disease's and pathogens, such as fungi and moulds.

Chemical application of herbicides are applied direct to the weed plant and soil for weed control and to enable the productive plants to maximise the water and fertiliser applied.

Some of the chemicals and fertilisers utilised in irrigated horticultural production are hazardous by nature. Safe work Australia website <https://www.safeworkaustralia.gov.au/chemicals> lists hazardous chemicals as;

Hazardous chemicals are substances, mixtures and articles that can pose a significant risk to health and safety if not managed correctly. They may have health hazards, physical hazards or both.

Examples of chemicals that can cause adverse health effects include:

- *toxic chemicals*
- *chemicals that cause skin damage*
- *carcinogens.*

Examples of chemicals that can immediately injure people or damage property include:

- *flammable liquids*
- *compressed gasses*
- *explosives.*

APVMA

APVMA is the organisation that oversees the registration of agricultural and veterinary chemicals in Australia. The following is an excerpt from their website (<https://apvma.gov.au>):

The Australian Pesticides and Veterinary Medicines Authority (APVMA) is an Australian Government statutory authority established in 1993 to centralise the registration of all agricultural and veterinary (agvet) chemical products into the Australian marketplace. Previously each state and territory government had its own system of registration. The APVMA was previously known as the National Registration Authority (NRA).

The APVMA determines the Agricultural and Veterinary Chemicals Code that all chemicals have to be registered to in Australia and labelling requirements that list the hazardous nature of the product being handled.

In addition to the label, the products require a MSDS (Material Safety Data Sheet) that provides more detail of the hazardous nature of the product, transport, storage and handling.

2. **Fuels and Oils and other materials**

Fuels and oils for plant, equipment and vehicles are also classed as hazardous material and have hazardous ratings for transport, storage and handling.

These products may also be listed as dangerous goods and require additional transport, handling and storage requirements. The legislation for dangerous goods laws is:

- Dangerous Goods Act 1998
- Dangerous Goods Regulations 1985.

The requirements are managed through Federal and State Legislation.

Classification Changes

Safe Work Australia classifying-hazardous-chemicals-national-guide informs of forthcoming changes to the classification and labelling of chemicals from GHS3 to GHS7.

Depending on water and land clearing approvals, the majority of the SHP development will be post December 2022 and fall under the new GHS7 classifications.

Transition to GHS 7

The Globally Harmonized System of Classification and Labelling of Chemicals (GHS) is a global method of classifying chemicals and preparing labels and SDS. The GHS is the basis of the system used for preparing labels and SDS in Australia, and also sets out the criteria used to determine if a chemical is hazardous.

The 3rd revised edition of the GHS (GHS 3) was implemented in Australia on 1 January 2012. On 1 January 2021, Australia will begin a 2-year transition to the 7th revised edition of the

GHS (GHS 7). During the transition manufacturers and importers may use either GHS 3 or GHS 7 to prepare classifications, labels and safety data sheets for hazardous chemicals. From 1 January 2023, only GHS 7 may be used.

During the transition, suppliers and users of hazardous chemicals may continue to supply and use chemicals classified and labelled under GHS 3. However, suppliers and users of hazardous chemicals should not supply or receive stock manufactured or imported after 31 December 2022 if it does not have an up to date labels or SDS under GHS 7.

Environmental Responsibility /Quality Assurance / Produce Risk Assessments

Australian horticultural production is viewed worldwide as 'clean and green'. The commitment by Australian farmers to maintain the standard of their operations provides for Australian produce to attract premium pricing for their produce. The SHP will also be focussed to produce horticultural commodities that are classed as 'clean and green'. Production will be focussed to minimise the requirements for chemical control for pests and diseases (assisted by the dry climatic conditions in the region).

Quality Assurance (QA) policies will be developed and maintained to QA program regulations with audits regularly completed by third party accredited auditors.

A base level of QA audit is to *HACCP* (Hazard Analysis Critical Control Points). Higher levels of accreditation such as Australian developed *Freshcare*, and Internationally recognised *Global Gap*, include third party independent audit regulations for environmental assessment, risk assessment and labour management.

Potential direct supplies to major supermarket chains such as Woolworths and Coles will also need to meet their minimum environmental assessment, risk assessment and labour management requirements.

These regulations recognise the consumer requirement for 'clean and green' produce through minimum and targeted use of chemicals, especially for pest and disease control. Monitoring and reporting is a major component of the record management in meeting these regulations.

An example is that the Global Gap environmental regulations for storage of liquid chemicals and hazardous materials require the site be bunded to capture a minimum 110% of the capacity of the largest container.

Worksafe Inspections

The SHP, at full operations, will be a major employer in the region with estimated 100 plus permanent staff supported by up to 1350 casual staff. This level of staffing will require its own HR / OH&S management.

The farm management will need to work with Worksafe NT to ensure all legislative requirements are adhered. This will include site visits and inspections to assist Management identify any issues of risk or concern.

Chemical/Fertiliser Use, Transport, and Storage

The volume and hazardous rating of the product to be used in the irrigated production determines the transport, storage and application methods that the Farm Management can utilise for the product.

Depending on the hazardous nature of the product the transportation may be limited in volume in any one load, signage requirements, and management plan for spill risk. All requirements are listed on the product label and MSDS for the product.

Transport

In the Northern Territory the relevant legislation for dangerous goods transport is:

- Transport of Dangerous Goods by Road and Rail (National Uniform Legislation) Act 2010
- Transport of Dangerous Goods by Road and Rail (National Uniform Legislation) Regulations 2011

The legislation adopts the Australian Dangerous Goods Code (ADG Code). Dangerous goods are classified under the ADG Code.

Transportation to the SHP site of all fuels, chemicals, fertilisers, and other hazardous materials is planned to be by third party direct suppliers and freight contractors. They will be assessed on a number of factors with particular reference to their procedures and processes to move hazardous materials. These procedures will need to be aligned with SHP standards.

Delivery & Storage

The SHP will be aiming to minimise any storage on farm with deliveries based on an 'as needed' requirement. However, due to the location of the property and distance from suppliers it is expected that maximum 2 months' supply will be stored on farm at any particular time.

Some products, such as insecticides may need to be stored longer for quick action on identification of the pest on farm, rather than delay in awaiting delivery.

For on farm storage, the storage limits, placarding and manifest requirements are determined by Federal and State legislation. Fuel is an example of an input product that will have specific onsite storage limits, signage, fire management and be listed in the Hazard manifest.

The SHP Farm Management will need to comply with these requirements as the volume of material on site increases through the development stages of the project and into full operations over the 8 years of development.

From the early stages of development, the volumes of inputs will increase until full production at approximately year 10 of the project, as all permanent crops reach operational maturity.

Under storage management processes, all products are to be stored in their existing containers, except where bulk liquid deliveries are decanted into on-farm identified, storage tanks or 1,000 litre shuttles.

Storage sites will need to be bunded to meet legislative and quality assurance requirements and storage management standard operational procedures for example where liquids will not be stored above powders and fertilisers are stored separately to chemicals.

A fire risk management program will be developed across the whole precinct that will include mitigation measures to protect chemical, fuel and fertiliser storage facilities.

Security of the storage facilities will be a component of their design to also minimise the access to the facilities for non-operational staff.

Diesel fuel will be the major volume of fuel to be stored on farm for farming equipment operations and bore generators.

Unleaded petrol volume storage and usage will be minor compared to Diesel.

Usage

The usage of chemicals/fertilisers in irrigated horticultural best practice production is targeted to the labelled use of the product and nutrient/pest control requirements of the plant and produce.

Any chemical use cannot exceed the label rate, unless by an approved APVMA or state government permit for use.

Personal Protective Equipment (PPE) required for use on the product label will be supplied and used by farm workers.

Usage of products on farm will be determined by their labelled usage and fall into the following categories

- Fertiliser – applied through fertigation with irrigation water or sprayed foliar to plant or spread on the ground.
 - Planned to be applied from July through to February.
- Insecticide – Generally foliar sprayed on the plant. Can also be incorporated with irrigation water or spread on the soil.
 - Only applied as required based on pest scout monitoring thresholds or directed by market access protocols.
- Herbicide – applied by foliar spray directly on the weed and soil.
 - Only applied as required.
- Adjuvant – mixed with sprays to improve their attraction and absorption into the plant/pest.
 - Only applied as required.

Attached (Appendix 1) is an estimated product list of forecast largest annual volumes of products based on a current horticultural commodities program. This list is an indicative guide only. With the timeframe for the SHP development and improvement/innovation in best practice techniques and understanding of the growing requirements in the SHP region, the products and volumes are likely to change.

Chemicals may need to be rotated to minimise the risk of resistance development by the targeted weed/pest.

Spill Management

A Spill Management policy and procedures will be developed for the SHP operations.

Global Gap Quality Assurance program provides an example of required standards as:

“The PPP (Plant Protection Product) Storage facilities have retaining tanks or products are bunded according to 110% of the volume of the largest container of stored liquid, to ensure that there cannot be any leakage, seeping or contamination to the exterior of the facility”.

“The PPP storage facilities and all designated fixed filling/mixing areas are equipped with a container of absorbent inert material such as sand, floor brush and dustpan and plastic bags that must in a fixed location to be used exclusively in case of spillage or PPP’s.”

Storage facilities will need to be bunded, along with the provisions of appropriate and specific fuel/oil spill kits, personal protective equipment and first aid requirements.

Cleaning of machinery and equipment will be in designated areas to minimise any risk to crops and surrounding environment and monitoring of the site for management of wastewater.

Waste Management

Input materials will be delivered to farm in a range of storage items from bags, 25, 10 and 5 lt bottles through to larger tanker bulk deliveries.

The National DrumMUSTER® program will be utilised for the disposal of containers. Ti Tree currently has the closest DrumMUSTER collection site.

There is potential to establish a DrumMUSTER site at the SHP property. This will be explored further with Barkley Regional Council and DrumMUSTER in line with the increasing volumes of product used on site.

Recycling of containers, such as 1,000 litre shuttles will be utilised wherever possible by returning to the product supplying company or recycling programs.

Bags will also be recycled, or appropriately disposed of as required.

Excess mixed product will be minimalised by mixing tank volumes to the volume of spray required to finish the commodity/patch. This is undertaken utilising agronomic programs to calculate the application rate and volume required for each patch area.

References

- a) <https://securent.nt.gov.au/prepare-for-an-emergency/hazardous-substances>
Hazardous Substances
Northern Territory Government
SecureNT website
- b) *Dangerous goods laws*
<https://worksafe.nt.gov.au/laws-and-compliance/dangerous-goods-laws>
NT Worksafe
- c) *Hazardous Chemical Information System (HCIS)*
Safe work Australia website <https://www.safeworkaustralia.gov.au/chemicals>

- d) *Australian Pesticide and Veterinary Medicines Authority
Australian Government
<https://apvma.gov.au/node/1063>*

- e) *<https://www.safeworkaustralia.gov.au/doc/classifying-hazardous-chemicals-national-guide>
Safe Work Australia Website
Classifying hazardous chemicals- national guide*

- f) *https://www.globalgap.org/uk_en/
GlobalGAP Website
Integrated Farm Assurance – All Farm Base | Crops Base | Fruits and Vegetables Checklist
English Version 5.2 Valid from 1 February 2019*

- g) *<https://www.drummuster.org.au/>
DrumMUSTER website*

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APPENDICES

Appendix 1

ANNUAL PRODUCT VOLUMES – ESTIMATE AT FULL PRODUCTION

Substance or Product	Application	Application type	ANNUAL Volume ltrs/kg	Frequency	Timing	Storage	Hazardous Status
Calcium Nitrate Liquid	Fertiliser	Drip, Foliar	594,000	Monthly	July to February	Bulk liquid, 1,000ltr shuttle	Not classified as hazardous
Mono Potassium Phosphate (MKP)	Fertiliser	Drip, Foliar, spreader	214,000	Monthly	July to February	Dry, mixed bulk bag or bag	Hazardous
Mono Ammonium Phosphate (MAP)	Fertiliser	Drip, Foliar, Spreader	206,000	Monthly	July to February	Dry, mixed bulk bag or bag	Not classified as hazardous
Urea (1000Kg)	Fertiliser	Drip, Foliar, Spreader	180,000	Monthly	July to February	Dry, mixed bulk bag or bag	Hazardous
Potassium Sulphate	Fertiliser	Drip, Foliar	176,000	Monthly	July to February	Dry, mixed bulk bag or bag	Hazardous
Potassium Nitrate	Fertiliser	Drip, Foliar	172,000	Monthly	July to February	Dry, mixed bulk bag or bag	Hazardous
AN25 Liquid	Fertiliser	Drip, Foliar	160,000	Monthly	July to February	Bulk liquid, 1,000ltr shuttle	Not classified as hazardous
Rustica Plus (1200Kg)	Fertiliser	Drip, Foliar	160,000	Monthly	July to February	Dry, mixed bulk bag or bag	Not classified as hazardous
Low Bi Urea	Fertiliser	Drip, Foliar	132,600	Monthly	July to February	Dry, mixed bulk bag or bag	Hazardous
Magnesium Nitrate	Fertiliser	Drip, Foliar	92,000	Monthly	July to February	Dry, mixed bulk bag or bag	Hazardous
Paraffinic oil	Insecticide	Foliar	88,800	Seasonal	If required	Drum, Bottle	Not classified as hazardous
Ca Plus	Fertiliser	Drip, Foliar	78,000	Monthly	July to February	Bulk liquid, 1,000ltr shuttle	Not classified as hazardous
Potassium Thiosulphate	Fertiliser	Drip, Foliar	72,000	Monthly	July to February	Bulk liquid, 1,000ltr shuttle	Not classified as hazardous
Magnesium Sulphate	Fertiliser	Drip, Foliar	61,800	Monthly	July to February	Dry, mixed bulk bag or bag	Not classified as hazardous
Ammonium Sulphate	Fertiliser	Drip, Foliar	56,000	Monthly	July to February	Dry, mixed bulk bag or bag	Not classified as hazardous
Fish Emulsion	Fertiliser	Drip, Foliar	54,000	Monthly	July to February	Bulk liquid, 1,000ltr shuttle	Not classified as hazardous
Potassium Nitrate (1200Kg)	Fertiliser	Drip, Foliar	48,000	Monthly	July to February	Bulk liquid, 1,000ltr shuttle	Hazardous
Thiovit	Fungicide	Foliar	43,200	Seasonal	If required	Dry, Bag	Hazardous
Metaldehyde	Insecticide	Spreader	36,000	Seasonal	If required	Dry, mixed bulk bag or bag	Hazardous
Granu-K (Potassium Sulphate) 1200Kg	Fertiliser	Drip, Foliar	30,000	Monthly	July to February	Dry, mixed bulk bag or bag	Hazardous
Platinum Plus (1200Kg)	Fertiliser	Drip, Foliar	30,000	Monthly	July to February	Dry, mixed bulk bag or bag	Not classified as hazardous
WEEDMASTER CRUCIAL	Herbicide	Ground Spray	29,160	Quarterly	If required	Bulk liquid, 1,000ltr shuttle, drum	Hazardous

Megafol	Fertiliser	Drip, Foliar	27,600	Monthly	July to February	1,000 litre Shuttle	Not classified as hazardous
Super Kelp	Fertiliser	Drip, Foliar	27,000	Monthly	July to February	1,000 litre Shuttle	Not classified as hazardous
Biopest	Insecticide	Foliar	25,200	Seasonal	If required	Drum, Bottle	Not classified as hazardous
Nat Flav	Insecticide	Foliar	24,300	Fortnightly	December to April	Drum, Bottle	Not classified as hazardous
Ncal	Fertiliser	Drip, Foliar	24,000	Monthly	July to February	1,000 litre Shuttle	Not classified as hazardous
Organic K	Fertiliser	Drip, Foliar	24,000	Monthly	July to February	1,000 litre Shuttle	Not classified as hazardous
BASTA	Herbicide	Ground Spray	23,600	Quarterly	If required	Bulk liquid, 1,000ltr shuttle, drum	Hazardous
Crop Doc 600	Fertiliser	Drip, Foliar	19,920	Monthly	July to February	Bulk liquid, 1,000ltr shuttle	Hazardous
Foliarel EL (Solubor)	Fertiliser	Drip, Foliar	16,400	Monthly	July to February	Dry, Bag	Not classified as hazardous
Fish Plus	Fertiliser	Drip, Foliar	16,000	Monthly	July to February	1,000 litre Shuttle	Not classified as hazardous
Fortuna Globe	Fungicide	Foliar	13,920	Seasonal	If required	Dry, Bag	Hazardous
Calcium Nitrate	Fertiliser	Drip, Foliar	12,000	Monthly	July to February	Dry, mixed bulk bag or bag	Not classified as hazardous
Winter Oil	Insecticide	Foliar	12,000	Seasonal	If required	Drum, Bottle	Hazardous
Double Trace	Fertiliser	Drip, Foliar, Spreader	10,800	Monthly	July to February	Dry, mixed bulk bag or bag	Hazardous
Brexil Nutre	Fertiliser	Drip, Foliar	7,800	Monthly	July to February	Dry, Bag	Not classified as hazardous
Nordox	Fungicide	Foliar	7,590	Seasonal	If required	Dry, Bag	Hazardous
Confidor Guard	Insecticide	Ground Spray	7,200	Seasonal	If required	Dry, Bag	Hazardous
ZOLIAR 800 DF	Herbicide	Ground Spray	6,600	Quarterly	If required	Bulk liquid, 1,000ltr shuttle, drum	Hazardous
Lannate	Insecticide	Foliar	5,688	Seasonal	If required	Drum, Bottle	Hazardous
Ferrilene 4.8	Fertiliser	Drip, Foliar	5,200	Monthly	July to February	1,000 litre Shuttle,	Not classified as hazardous
Brexil Duo	Fertiliser	Drip, Foliar	4,800	Monthly	July to February	Dry, Bag	Not classified as hazardous
Valagro Mix 5	Fertiliser	Drip, Foliar	2,600	Monthly	July to February	Dry, Bag	Not classified as hazardous
Brexil Combi	Fertiliser	Drip, Foliar	2,400	Monthly	July to February	Dry, Bag	Not classified as hazardous
Trace-It Total	Fertiliser	Drip, Foliar	2,400	Monthly	July to February	Dry, Bag	Hazardous
STRIKER	Herbicide	Ground Spray	2,185	Quarterly	If required	Drum, Bottle	Hazardous
Chlorpyrifos	Insecticide	Foliar	1,800	Seasonal	If required	Drum, Bottle	Hazardous
Exirel	Insecticide	Foliar	1,800	Seasonal	If required	Dry, Bag	Hazardous
FLEXTEND	Adjuvant	Ground Spray	1,495	Quarterly	If required	Drum, Bottle	Not classified as hazardous
SPRAYSEED 250AC	Herbicide	Ground Spray	1,400	Quarterly	If required	Drum, Bottle	Hazardous (1 corrosive to metals)

Wet Cit	Adjuvant	Foliar, Ground Spray	2,200	Seasonal	If required	Drum, Bottle	Hazardous (4 acute toxicity, 2A eye irritation)
Diesel	Fuel		65,000	Daily	As required	Bulk liquid	Hazardous
Unleaded Petrol	Fuel		8,000	Daily	As Required	Bulk liquid	Hazardous