

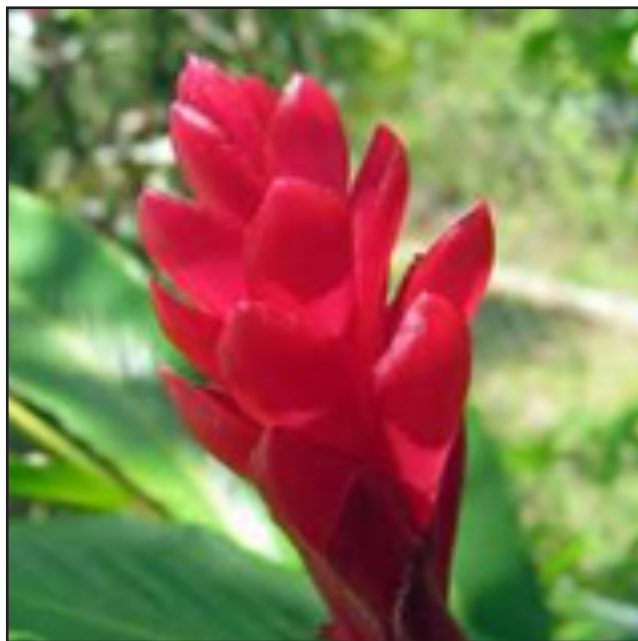
Flowers

1. Anthuriums
2. Ginger Lily
3. Heliconias
4. Orchids

TECHNOLOGY PACKS



GINGER LILY



November 2015

Background

Production decisions concerning how much effort and resources to invest and which farming practices to follow, have consequences and create opportunities for the farm affecting production levels, input costs, time constraints, and the potentially size of the operation. They also may have implications for resource use and environmental quality.

Numerous information exist on the various aspects of production and handling/ marketing of crops and livestock, the majority of which are outdated, not easily understood and lacking the where with all for addressing present day challenges such as good agricultural practices (GAPs) and food safety and climate change that impact on the environment and rural livelihoods. These issues are also closely related to the importance of the role of primary producers in increasing the earnings of all actors along the value chain in supporting the development of a commercially viable and sustainable agricultural industry.

The production of high quality and easily understood information packages is critical as this forms a basis for farmers to obtain financing from lending institutions and to efficiently increase their production through the availability of modern technology. This will also result in a reduction of rural unemployment and will greatly help in alleviating poverty and other associated social ills.

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GINGER LILY



November 2015

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Introduction

This Technological Package (Tech Pack) deals with the production and postharvest aspects of ginger lily.

Also included in the Tech Pack are appendices:

- Template for cost of production
- List of recommended pesticides and application rates
- Good Agricultural Practices data record sheet.

Notwithstanding the identification of any specific pesticide for the control of pests and diseases, this decision is for the discretion of the Ministry of Agriculture Area Extension Officer and the farmer.

However, the mention of any pesticides and other products used in the Tech Pack should strictly comply with local regulations and all instructions provided by the manufacturer. Also, the use of trade names in the Tech Pack is for the purpose of citing examples and is not meant to either endorse or discredit any particular product.

Botanical Description

Ginger lily (*Hedychium coronarium*), also known as butterfly lily, belongs to the ginger family Zingiberaceae.

Varieties

A number of ginger lily varieties exist and can be distinguished by their colour, which may be red, pink, white or yellow (Plates 1 to 4) and shape of their blooms etc.



Plate 1 Red



Plate 2 Pink



Plate 3 White



Plate 4 Yellow

Site Selection

Ginger lily performs best in the sun or partial shade. Select sites with soils that are rich, moist and acidic, and well drained for optimal growth.

Land Preparation

Clear the planting area of all weeds and loosen the soil so that the planted crop can spread its roots easily. If the site is sloping then the rows should be planted across the slope. Spread a 2 - 3 inch (5 - 8 cm) layer of mulch over the soil surrounding ginger lily plants to insulate the soil, increase moisture retention and reduce the growth of weeds. Replenish the mulch whenever necessary to keep it at least 2 inches (5 cm) thick.

Planting Material

Divide rhizomes by breaking into in pieces, with each section containing an “eye,” or growth bud (Plate 5). Plant the rhizome pieces in potting bags containing fertile soil and water frequently to allow the rhizomes to germinate.



Plate 5 Rhizome piece for use as planting material

Spacing and Planting

Dig the planting holes twice the width and depth of the growing bags, space planting holes every 2 – 3 feet (60 cm to 90 cm) in rows 3 feet (90 cm) apart. In the planting holes mix three parts soil with one part rotted leaves, aged compost or manure. Place the ginger lily plantlets into the planting holes. They should be planted at the same depth as they were grown in the potting bags, or just slightly higher (about 1 inch or 2.5 cm). Fill the planting holes by scooping in the remainder of soil and organic matter material. Water the plants thoroughly.

Irrigation

If irrigation is to be used, install pipes and sprinklers or drip lines before placing plants in the ground. Water plants once every 5 days during the first 2 months of growth to help establish the roots. Reduce the frequency of watering thereafter to once every 7 - 10 days to prevent the soil from drying out completely.

Fertilization

Apply fertilizer in granular or liquid form to ginger lily plants once every month using an all-purpose 10-10-10 or 12-12-12 NPK fertilizer. Apply at the rate recommended by the manufacturer's instructions. After fertilizing, water immediately to release the nutrients into the soil and prevent injury to the plant roots.

Crop Care

Remove dead and faded ginger lily flowers as soon as possible, a process known as deadheading, to encourage the formation of additional flowers and extend the blooming season. Remove the flowers as close to the stem as possible to minimize damage to the plant.

Weed Control

Control weeds using organic mulch 2 – 3 inches (5 - 8 cm) deep prior to planting and replenish when necessary. Weed control can also be done manually when required.

Pest and Diseases

Few insect pests attack ginger lilies as some species contain essential oils that possess insecticidal properties. However nematodes (*Radopholus similis*) do infect ginger lily plant roots producing poor growth (Plate 6). They can be controlled with the nematicides used for banana crops.



Plate 6 Ginger lily roots affected by nematodes *Radopholus similis*

Diseases rarely affect ginger lilies. Although the plants like moist soil and many species tolerate wet substrates, waterlogged sites may exacerbate fungal root-rot diseases in some varieties. Also bacterial diseases (*Pseudomonas solonacearum*) can affect plant roots.

Harvesting/Maturity

All flowers should be picked when market ready, keeping the flower plants clean of old flowers to encourage new growth. Cut the flowers at the base of the stem just above the soil retaining two to three leaves. Discard any flowers that are too old, marked or damaged. Trim unwanted material such as leaves and extra stem and deposit, together with any discarded flowers, at the base of the plant as mulch.

Post Harvest Care

Trim all flowers to the same length to fit into the holding container or box. Carefully place cut flowers upright in the shade until ready to be taken to the treatment area.

At the treatment area, all flowers should be kept cool and placed in clean water at least 4 inches (10 cm) deep at all times. Select flowers that are clean, unblemished and neatly trimmed. Foliage should be clean with no spots or insect damage. The heads may be dipped in water to dislodge any insects that may be attached.

During packaging for sale each ginger lily should be wrapped in individual sleeves to ensure proper protection of the delicate bloom until it arrives at its final destination. The flowers will be secured in a 48 inch x 12 inch x 6 inch; 120 cm x 33 cm x 12 cm (length x width x height) cardboard box which has been filled with moist shredded paper to keep the blooms hydrated until their delivery date.

Yields

Yields vary depending on the management practices adopted and varieties. Highest yields are obtained when ginger lilies are cultivated under optimum conditions required for plant growth; namely the growth media, adequate light, temperature, water and fertilizer regimes.

Storage

Ginger lilies can be stored for 7-14 days at room temperature. Blooms should not be kept at temperatures below 55°F (13°C) and relative humidity lower than 85%. Avoid storing or placing blooms near ethylene producing sources such as injured plants, ripening fruits and vehicle exhaust, as ethylene gas will age the blooms prematurely.

APPENDICES



APPENDIX I: TEMPLATE FOR COST OF PRODUCTION ANALYSIS: GINGER LILY

	Input	Quantity	Units	Unit Cost	Total Cost
1.	Planting material				
	Ginger lily rhizomes				
	Potting bags				
	Growing media				
	Total cost for planting material				
2.	Land preparation				
	Mulch				
	Compost				
	Other land preparation costs (e.g. equipment rental)				
	Total cost for land preparation				
3.	Crop maintenance				
	Water/irrigation				
	Organic mulch for weed control				
	Fertilizer (specify types used)				
	Pest and disease control (specify chemicals etc. used)				
	Total cost for crop maintenance				
4.	Harvest/storage				
	Cardboard boxes/packing material				
	Estimate any utility costs				
	Transport to market				
	Total cost for harvest/storage				
5.	Labour				
	Planting material				
	Land preparation				
	Crop maintenance				
	Harvest/storage				
	Total cost for labour				
6.	Rent/insurance				
7.	Miscellaneous costs				
	Total cost of production				

Notes

1. It is recommended that the above data be completed on an annual basis.
2. The cost of any fixed structures should be considered. For example if a structure is solely used for ginger lily production in the year and is expected to last for 10 years, then one tenth of the cost of construction (plus any annual maintenance) should be added at item 7.
3. The revenue obtained from sale of the crop should be compared with the cost of production to determine the profit/loss on the operation.

APPENDIX II: LIST OF RECOMMENDED PESTICIDES AND APPLICATION RATES

INSECTICIDES	APPLICATION RATE
Pronto 35 SC	3 - 5 teaspoons/gallon of water
Target	1 - 2 teaspoons/gallon of water
Pirate	½ - 1 teaspoons/gallon of water
Fastac	1 - 2 teaspoons/gallon of water
Caprid	½ - 1 teaspoon/gallon of water
Diazinon (Basudin)	¾ - 1½ pints/acre
Admiral	¼ teaspoon/gallon of water
Dipel	1½ - 2 teaspoons/gallon of water
Aza-direct	1 - 2 teaspoons/gallon of water
Cure	½ - 1 teaspoon/gallon of water
Danitol	1 - 2 teaspoons/gallon of water
Cypro	½ tablespoon/gallon of water
Dimethoate (Perfechion, Rogor 40)	1 pint/acre
Phosvel	1¼ - 2 pints/acre
Orthene	3.2 ounces/acre
Permethrin (Ambush)	½ teaspoon/gallon of water
Padan 50 WSP	2 - 3 teaspoons/gallon of water
Lannate	1 teaspoon/gallon of water
Decis	½ teaspoon/gallon of water
Kelthane 42%	1¼ lb/acre
Orthene 75S	1 lb/acre
Malathion	½ - 1 pint/acre
Sevin	1½ lb/acre
BT (<i>Bacillus thuringiensis</i>)	Label rates
Rotenone	1 - 2 teaspoons/gallon of water
Neem X.	8 - 10 oz/gallon of water
FUNGICIDES	APPLICATION RATE
Bellis	2 teaspoon/gallon of water
Acrobat	2 - 4 teaspoon/gallon of water
Mancozeb (Dithane M45)	1.5 lb/acre
Cabendazim	2 teaspoon/gallon of water
Daconil	1½ - 2 pints/acre
Benomyl (Benlate)	6 oz/acre
Captan	2 - 3 teaspoons/gallon of water
Peltar	3 teaspoons/gallon of water
Manzate DF	2 - 4 teaspoons/gallon of water
Bravo	1½ - 2 pints/acre
Tri-Milttox-Forte	3 teaspoons/gallon of water
Botrilex	5 - 200 lbs/acre
Kocide 101	2 - 4 teaspoons/gallon of water
Cupravit	2½ lb/acre

APPENDIX II: LIST OF RECOMMENDED PESTICIDES AND APPLICATION RATES

WEEDICIDES	APPLICATION RATE
DCPA (Dacthal W-75)	10 lb/acre
Diphenamide	4 - 10 lb/acre
Paraquat (Gramoxone)	1 - 2 pints/acre
Dymid 80W	5 lb/acre
Atrazine 80 (Gesaprim).	1¼ - 1½ lb/acre
Linuron (Lorox)	1 pint/acre
Prometryn (Caparol)	0.8 - 1.6 lb/acre
Sethoxydim (Poast)	1¼ - 3½ lb/acre
Clethodim (Select)	0.094 - 0.25 lb/acre
Prometryn 50WP (Geagard)	2 - 3 lb/acre
Herbicidal Oil (Stoddard Solvent, Kerosene oil)	40 - 80 gallons/acre

APPENDIX III: GOOD AGRICULTURAL PRACTICES DATA RECORD SHEET

Grower name:							
* Name of applicator	Date	Brand and product name	Rate	Size of area/no. of plants treated	Total application (amount of the product used)	Notes/target pest	Start/finish time

*The applicator should be trained or, if not, supervised by a trained or certified person. Proof of training required

