# *Heliconia stricta* 'Iris'

## An ornamental intercrop for shaded plantations

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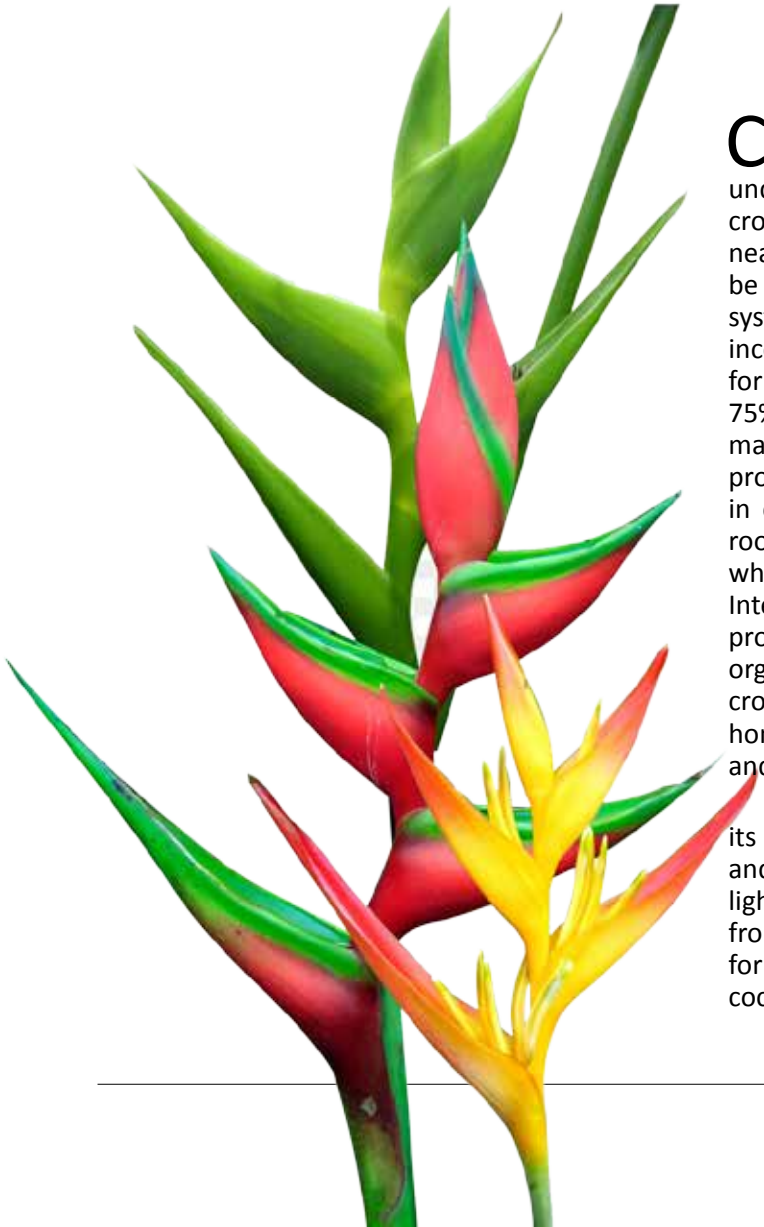

Coconut (*Cocos nucifera L.*) is the major plantation crop of coastal India which is often remunerative under crop diversification. Unlike other plantation crops, due to the unique canopy and root structure, nearly 78% of land in coconut plantations can be effectively used for establishing intercropping system. Many sustainable cropping system models incorporating various intercrops have been identified for coconut plantations that can provide more than 75% light intensity. Growing flower crops of higher market demand and requiring lesser light is a promising venture which can be effectively adopted in coconut plantations. Flower crops have shallow root system, thus demanding continuous irrigation which in turn favours the growth and yield of palms. Intercropping also encourages crop diversity, by providing habitat for a variety of insects and soil organisms that would not be present in a single-crop environment. In addition, flower crops attract honey bees that are important in coconut foraging and pollination.

Heliconias are tropical ornamentals grown for its outstanding flower diversity in form, colour, size and particularly, its durability. The requirement of light for growth and flowering of *Heliconia* varies from species to species. There is great potential for growing shade loving *Heliconia* as intercrop in coconut gardens.

| For Heliconia cut flower industry, the characteristics of interest are: |
|---|
| Production of inflorescences during the whole year |
| Short flowering cycle |
| Flowering stems that are light in weight for lower transportation costs |
| Flower stems or peduncle longer than 80 cm |
| Inflorescences with no wax and no hair; and bracts arranged in one plane for easier handling and packing |
| Inflorescence length of more than one meter |
| Firmness of bract |
| Bract with few or no flowers inside |
| Post harvest durability or vase life of more than seven days. |

*Heliconia stricta* 'Iris' is a commercial variety with all the above preferred characteristics. Based on the inflorescence characters such as fresh weight of stems (101 -200 g), stem diameter (10.1-30.0 mm), stem length (50.1-150.0 cm) and spike length (10.1-30.0 cm), Iris variety is categorized under High Performance group. Depending on the marketing channel, a single inflorescence of *Heliconia stricta* 'Iris' can fetch Rs. 20 to Rs. 250 in the national market. Large flowers of this variety with more than one meter length can fetch $2 to $18 each in the International markets. At least 4 to 5 marketable inflorescences are produced in the first year of planting itself. It produces 45-50 inflorescences/ clump/year in the subsequent years. H. stricta needs to be replanted in every 3-4 years.

Unlike other cut flowers such as anthurium and orchid, *Heliconia* 'Iris' comes up well in the natural microhabitat of coconut canopy. Experiments conducted at ICAR-Central Plantation Crops Research Institute have found that *Heliconia stricta* 'Iris' as a potential intercrop which can be introduced profitably in plantations with higher shade intensity of 60 to 65%. Growing heliconias in the interspaces improved soil moisture retention in coconut rhizosphere due to frequent irrigation which also resulted in reduced button shedding and increased fruit setting in such palms.

## Planting material

Rhizomes taken from seven months old, healthy vegetative suckers are to be used for planting.

## Planting

Planting can be done except during winter and heavy monsoon seasons. However, the ideal time for planting Iris is from August to November. For commercial cultivation, at least 250 plants are to be planted which requires 25 cents of coconut plantation. The rhizomes are planted in pits of size 30 cm x 30 cm x 30 cm at 1.5 m leaving a distance of 2 m around the coconut basins. The pits are refilled with topsoil mixed with dried cow dung (1 kg/pit) and bone meal (250 g/pit). Mulching with dried leaves or coir pith is to be done after planting. Rhizomes start sprouting at 45 days after planting.

## Irrigation

Heliconia plants always require moist soil. It needs to be irrigated once in two days during summer. However, the frequency of irrigation can be reduced to once in four days by providing mulching with coir pith compost during February-March.

## Manuring

*Heliconia* 'Iris' can be grown either as purely organic or integrating organic manures and chemical fertilizers. The manures and fertilizers are applied at quarterly intervals beginning from three months after planting. For organically grown *Heliconia*, 200 g vermicompost and 100 g neemcake are applied per plant at three months interval. Dried coconut leaves can be converted to vermicompost using earthworms (*Eudrillus sp.*). Half the dose of vermicompost and neemcake (100 g and 50 g per plant) along with 13:5:13 NPK (5 g/plant ) can be given at three months interval for integrated method of cultivation. In both the conditions, drenching diluted cow dung slurry in the ratio of 1:10 at six monthly intervals enhances the production of quality inflorescence.

Thinning of eight months old suckers with less than 7 cm diameter should be carried out monthly for promoting production of more number of quality inflorescences.

## Plant protection

No major pest is recorded in *Heliconia* 'Iris'. However, fungal rotting of leaves is common during heavy monsoons. Prophylactic spraying with carbendazim 50% WP @ 1 g/l is to be adopted for controlling leaf rot.

## Yellowing

Yellowing of leaves during the early growth stages is noticed in *H. stricta*. This is mainly due to nutrient deficiency, particularly of potassium. If yellowing persists, soil application of 60 g muriate of potash per plant is recommended at vegetative phase.

## Harvesting

*Heliconia* 'Iris' starts flowering at eight months after planting. The harvesting is usually done before 9 am or after 4 pm by cutting the rhizomes at ground level along with the inflorescence. After cutting, the outer leaves are to be stripped off and the top most leaf blades are cut leaving the petiole. The inflorescences have 10-12 days of vase life and can be used in stage decorations, bouquet making, long flower arrangement etc.

Inflorescences of around one meter length and nine centimeter stem girth with two or more open bracts are preferred for sale. Smaller inflorescences can be used for value addition such as bouquets and table top arrangements. The cut end of the inflorescence stem is dipped in tap water for about an hour to remove the field heat. They are then washed in water for removing soil and dust. The excess water is wiped off and inflorescences are graded based on their length. Inflorescence with fewer flowers inside the bracts are ideal for marketing as it will reduce time and cost of cleaning and minimize occurrence of insects, odours from water accumulation and organic matter deterioration.

## Grading

Inflorescences of *Heliconia* 'Iris' can be graded based on their length, stem girth and spike width.

| Grades | Length of inflores-cence (cm) | Stem girth (cm) | Spike width (cm) |
|---|---|---|---|
| Grade I | >100 | >9 | >25 |
| Grade II | 75-100 | 7-9 | 20-25 |
| Grade III | <75 | <7 | <20 |

## Packing

Inflorescence can either be packed individually or in bulk. Care must be taken to exclude ants, bees etc. before packing. Bulk packing needs minimum of 45 inflorescences and inflorescence of uniform size are packed in a single box. Different materials such as aluminum foil, butter paper and news papers or recycled papers can be used for wrapping the inflorescence.

**Cultivation of Heliconias can open up scope for employment generation and youth empowerment through value addition such as bouquet making, flower arrangement, stage decoration etc. Additional labour employment of 1000, 1500 and 1800 man days/ha, respectively during the first, second and third years can be created through Heliconia cultivation.**

## Economics of cultivation

The economics of intercropping *Heliconia stricta* 'Iris' for three years in one hectare of coconut plantation is as follows :

| Year | Input cost (Rs.) | Returns (Rs.) through sale | | Net returns (Rs.) | Benefit cost ratio |
|---|---|---|---|---|---|
| | | Inflores-cence @ Rs20/- | Rhi-zomes @ Rs.60/- | | |
| I yr | 146750 | 24000 | - | -122750 | |
| II yr | 255000 | 540000 | 225000 | 510000 | 3:1 |
| III yr | 400000 | 675000 | 540000 | 815000 | 3:1 |

The initial cost of cultivation is very high due to the cost of planting material which may require financial support from banks or financial institutions. The cultivation of Heliconias can also open up scope for employment generation and youth empowerment through value addition such as bouquet making, flower arrangement, stage decoration etc. Additional labour employment of 1000, 1500 and 1800 man days/ha, respectively during the first, second and third years could be expected. Export of flowers to emerging markets like Middle East and Europe offer opportunities for market development and earning valuable exchange to the nation. ■