# FERTILISER RECOMMENDATIONS FOR SUGARCANE-GOWING SOILS IN SRI LANKA WITH AN ALTERNATE SOURCE FOR TRIPLE SUPER PHOSPHATE

**Sugarcane Research Institute**

**Uda Walawe**

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**Fertiliser Recommendations for Sugarcane-growing Soils at Uda Walawe, Sevanagala, Pelwatte, Hingurana, Kantale, Killinochchi and Badulla**

The detail fertiliser recommendations for rain-fed and irrigated sugarcane lands are provided for adoption. The rates of Urea, Triple Super Phosphate (TSP), High-grade Eppawala Rock Phosphate (HERP) and Muriate of Potash (MOP) in the recommendations have been estimated based on the fertiliser response and nutrient removal studies carried out in the sugarcane-growing soils. The fertiliser levels have been rounded to the nearest $^1/_2$ or $^1/_4$ of a 50 kg fertiliser bag to facilitate easy handling and distribution. The following important instructions should be followed when applying fertilisers to sugarcane.

- Fertiliser should be applied when soil is moist
- Under rain-fed cultivation, the top dressing should be applied with rains
- Once applied, the fertiliser should always be covered with a layer of soil
- Trash should be left on the soil as mulch without burning
- The rate of trash degradation could be enhanced by the application of Urea at the rate of 25 kg per hectare (Dissolve with water and sprayed as a liquid or applied directly on to trash under moist conditions)
- The soil pH should be monitored every 3-4 years
- Organic fertiliser with a pH around 7 could be incorporated into the soil for improving the retention of nutrients of low-yielding lands. SRI recommendations for the application of filter-mud and vinasse, separately or in the form of compost for sugarcane-growing fields and given below.

    - Option 1 - Application of 10-20 tons of filter-mud mixed vinasse compost before planting
    - Option 2 - Application of 20 – 30 tons of filter-mud application at 2-3 weeks before planting
    - Option 3 - Application of vinasse to sugarcane plantations at the rate of 40 $m^3$/ha once in every 3 years, one week before planting and soon after ratooning

The Crop Nutrition Division of SRI will monitor the soil and plant conditions and make amendments or revise the recommendations whenever necessary.

## Fertiliser Recommendations for all Sugarcane-growing Soils

### Uda Walawe Sugarcane-growing Soils

| | Urea (kg/ha) | HGRP (kg/ha) | MOP (kg/ha) |
|---|---|---|---|
| **Irrigated** | | | |
| Plant crop | 300 | 100 | 225 |
| At planting | 50 | 100 | 112.5 |
| 45 days after planting | 100 | - | |
| 90 days after planting | 150 | - | 112.5 |
| Ratoon crop | 325 | 100 | 225 |
| After stubble shaving | 50 | 100 | 112.5 |
| 45 days after planting | 125 | - | |
| 90 days after planting | 150 | - | 112.5 |
| **Rain-fed** | | | |
| Plant crop | 250 | 100 | 200 |
| At planting | 75 | 100 | 100 |
| Between 6 – 12 wks after planting | 175 | - | 100 |
| Ratoon crop | 275 | 100 | 200 |
| After stubble shaving | 125 | 100 | 100 |
| Between 6 – 12 wks after stubble shaving | 150 | - | 100 |

* **TSP** can be used instead of **HGRP** at a rate of 50 kg/ha as a basal application in both irrigated and rain-fed conditions

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HERP = High-grade Eppawala Rock Phosphate
TSP = Triple Super Phosphate
MOP = Muriate of Potash

**Sevanagala Sugarcane-growing Soils - Irrigated**

| | **Urea** (kg/ha) | **HGRP** (kg/ha) | **MOP** (kg/ha) |
|---|---|---|---|
| **Irrigated** | | | |
| Plant crop | **300** | **100** | **225** |
| At planting | 50 | 100 | 112.5 |
| 45 days after planting | 100 | - | - |
| 90 days after planting | 150 | - | 112.5 |
| Ratoon crop | **325** | **100** | **225** |
| After stubble shaving | 50 | 100 | 112.5 |
| 45 days after planting | 125 | - | - |
| 90 days after planting | 150 | - | 112.5 |

* **TSP** can be used instead of **HGRP** at a rate of 50 kg/ha as a basal application in both irrigated and rain-fed conditions

**Sevanagala Sugarcane-growing Soils – Rain-fed**

| | **Urea** (kg/ha) | **HGRP** (kg/ha) | **MOP** (kg/ha) |
|---|---|---|---|
| **Rain-fed** | | | |
| Plant crop | **250** | **100** | **200** |
| At planting | 75 | 100 | 100 |
| Between 6 – 12 wks after planting | 175 | - | 100 |
| Ratoon crop | **275** | **100** | **200** |
| At planting | 125 | 100 | 100 |
| Between 6 – 12 wks after planting | 150 | - | 100 |

* **TSP** can be used instead of **HGRP** at a rate of 50 kg/ha as a basal application in both irrigated and rain-fed conditions

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## Pelwatte Sugarcane-growing soils – Rain-fed

Fertiliser recommendation for rain-fed sugarcane cultivation in Nucleus estate, Settler section and Out-grower areas (Buttala, Wellawaya, Badalkumbura, Moneragala and Siyambalanduwa) of Pelwatte.

| | **Urea** (kg/ha) | **HGRP** (kg/ha) | **MOP** (kg/ha) |
|---|---|---|---|
| Plant crop | **250** | **100** | **200** |
| At planting | 75 | 100 | 100 |
| Between 6 – 12 wks after planting | 175 | - | 100 |
| Ratoon crop | **275** | **100** | **200** |
| After stubble shaving | 125 | 100 | 100 |
| Between 6 – 12 wks after stubble shaving | 150 | - | 100 |

* **TSP** can be used instead of **HGRP** at a rate of 50 kg/ha as a basal application in both irrigated and rain-fed conditions

## Pelwatte sugarcane-growing Alkaline soils – Rain-fed

| | **Urea** (kg/ha) | **HGRP** (kg/ha) | **MOP** (kg/ha) |
|---|---|---|---|
| Plant crop | **250** | **100** | **150** |
| At planting | 75 | 100 | 75 |
| Between 6 – 12 wks after planting | 175 | - | 75 |
| Ratoon crop | **275** | **100** | **150** |
| After stubble shaving | 125 | 100 | 75 |
| Between 6 – 12 wks after stubble shaving | 150 | - | 75 |

* **TSP** can be used instead of **HGRP** at a rate of 50 kg/ha as a basal application in both irrigated and rain-fed conditions

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MOP = Muriate of Potash

**Hingurana Sugarcane-growing soils**

## Hingurana Reddish Brown Earths (RBE) - Irrigated

| | **Urea** (kg/ha) | **HGRP** (kg/ha) | **MOP** (kg/ha) |
|---|---|---|---|
| Plant crop | **300** | **100** | **225** |
| At planting | 50 | 100 | 110 |
| 45 days after planting | 100 | - | - |
| 90 days after planting | 150 | - | 115 |
| Ratoon crop | **325** | **100** | **225** |
| After stubble shaving | 50 | 100 | 110 |
| 45 days after stubble shaving | 125 | - | - |
| 90 days after stubble shaving | 150 | - | 115 |

***** **TSP** can be used instead of **HGRP** at a rate of 50 kg/ha as a basal application in both irrigated and rain-fed conditions

## Hingurana Reddish Brown Earths (RBE) - Rain-fed

| | **Urea** (kg/ha) | **HGRP** (kg/ha) | **MOP** (kg/ha) |
|---|---|---|---|
| Plant crop | **250** | **100** | **200** |
| At planting | 75 | 100 | 100 |
| Between 6 – 12 wks after planting | 175 | - | 100 |
| Ratoon crop | **275** | **100** | **200** |
| After stubble shaving | 125 | 100 | 100 |
| Between 6 – 12 wks after stubble shaving | 150 | - | 100 |

***** **TSP** can be used instead of **HGRP** at a rate of 50 kg/ha as a basal application in both irrigated and rain-fed conditions

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**Hingurana Non-Calcic Brown Soils (NCB) - Irrigated**

| | **Urea** (kg/ha) | **HGRP** (kg/ha) | **MOP** (kg/ha) |
|---|---|---|---|
| Plant crop | **300** | **100** | **275** |
| At planting | 50 | 100 | 135 |
| 45 days after planting | 100 | - | - |
| 90 days after planting | 150 | - | 140 |
| Ratoon crop | **325** | **100** | **275** |
| After stubble shaving | 50 | 100 | 135 |
| 45 days after stubble shaving | 125 | - | - |
| 90 days after stubble shaving | 150 | - | 140 |

* **TSP** can be used instead of **HGRP** at a rate of 50 kg/ha as a basal application in both irrigated and rain-fed conditions

**Hingurana Non-Calcic Brown Soils (NCB) - Rain-fed**

| | **Urea** (kg/ha) | **HGRP** (kg/ha) | **MOP** (kg/ha) |
|---|---|---|---|
| Plant crop | **250** | **100** | **250** |
| At planting | 75 | 100 | 125 |
| Between 6 – 12 wks after planting | 175 | - | 125 |
| Ratoon crop | **275** | **100** | **250** |
| After stubble shaving | 125 | 100 | 125 |
| Between 6 – 12 wks after stubble shaving | 150 | - | 125 |

* **TSP** can be used instead of **HGRP** at a rate of 50 kg/ha as a basal application in both irrigated and rain-fed conditions

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**Hingurana Alluvial Soils - Irrigated**

| | **Urea** (kg/ha) | **HGRP** (kg/ha) | **MOP** (kg/ha) |
|---|---|---|---|
| Plant crop | **300** | **100** | **250** |
| At planting | 50 | 100 | 125 |
| 45 days after planting | 100 | - | - |
| 90 days after planting | 150 | - | 125 |
| Ratoon crop | **325** | **100** | **250** |
| After stubble shaving | 50 | 100 | 125 |
| 45 days after stubble shaving | 125 | - | - |
| 90 days after stubble shaving | 150 | - | 125 |

* **TSP** can be used instead of **HGRP** at a rate of 50 kg/ha as a basal application in both irrigated and rain-fed conditions

**Hingurana Alluvial Soils - Rain-fed**

| | **Urea** (kg/ha) | **HGRP** (kg/ha) | **MOP** (kg/ha) |
|---|---|---|---|
| Plant crop | **250** | **100** | **225** |
| At planting | 75 | 100 | 110 |
| Between 6 – 12 wks after planting | 175 | - | 115 |
| Ratoon crop | **275** | **100** | **225** |
| After stubble shaving | 125 | 100 | 110 |
| Between 6 – 12 wks after stubble shaving | 150 | - | 115 |

* **TSP** can be used instead of **HGRP** at a rate of 50 kg/ha as a basal application in both irrigated and rain-fed conditions

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## Kantale Sugarcane-growing Soils - Irrigated

| | **Urea** (kg/ha) | **HGRP** (kg/ha) | **MOP** (kg/ha) |
|---|---|---|---|
| Plant crop | **300** | **100** | **225** |
| At planting | 50 | 100 | 110 |
| 45 days after planting | 100 | - | - |
| 90 days after planting | 150 | - | 115 |
| Ratoon crop | **325** | **100** | **225** |
| After stubble shaving | 50 | 100 | 110 |
| 45 days after stubble shaving | 125 | - | - |
| 90 days after stubble shaving | 150 | - | 115 |

* **TSP** can be used instead of **HGRP** at a rate of 50 kg/ha as a basal application in both irrigated and rain-fed conditions

## Killinochchi Sugarcane-growing Soils – Irrigated

| | **Urea** (kg/ha) | **HGRP** (kg/ha) | **MOP** (kg/ha) |
|---|---|---|---|
| Plant crop | **300** | **100** | **225** |
| At planting | 50 | 100 | 110 |
| 45 days after planting | 100 | - | - |
| 90 days after planting | 150 | - | 115 |
| Ratoon crop | **325** | **100** | **225** |
| After stubble shaving | 50 | 100 | 110 |
| 45 days after stubble shaving | 125 | - | - |
| 90 days after stubble shaving | 150 | - | 115 |

* **TSP** can be used instead of **HGRP** at a rate of 50 kg/ha as a basal application in both irrigated and rain-fed conditions

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TSP = Triple Super Phosphate
MOP = Muriate of Potash

**Killinochchi Sugarcane-growing Soils – Rain-fed**

| | **Urea** (kg/ha) | **HGRP** (kg/ha) | **MOP** (kg/ha) |
|---|---|---|---|
| Plant crop | **250** | **100** | **200** |
| At planting | 75 | 100 | 100 |
| Between 6 – 12 wks after planting | 175 | - | 100 |
| Ratoon crop | **275** | **100** | **200** |
| At planting | 125 | 100 | 100 |
| Between 6 – 12 wks after planting | 150 | - | 100 |

* **TSP** can be used instead of **HGRP** at a rate of 50 kg/ha as a basal application in both irrigated and rain-fed conditions

**Badulla District Sugarcane-growing Soils**

**Upcountry Intermediate Zone (Passara etc.)**

It is required to broad-cast 2500 kg/ha of Dolamite on bare fields and planting could be started after one and half months with the basal fertiliser application. The next application of dolomite i.e. 2500 kg/ha could be made after 3-5 years or testing soil pH.

| | **Urea** (kg/ha) | **HGRP** (kg/ha) | **MOP** (kg/ha) |
|---|---|---|---|
| **Irrigated** | | | |
| Plant crop | **100** | **100** | **125** |
| At planting | 25 | 100 | 62 |
| 45 days after planting | 25 | | |
| 90 days after planting | 50 | | 63 |
| Ratoon crop | **125** | **100** | **125** |
| After stubble shaving | 50 | 100 | 62 |
| 45 days after stubble shaving | 25 | | |
| 90 days after stubble shaving | 50 | | 63 |

* **TSP** can be used instead of **HGRP** at a rate of 50 kg/ha as a basal application in both irrigated and rain-fed conditions

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**Low country Intermediate Zone (Mahiyanganaya, Padiyathalawa, Maha Oya etc.)**

| | **Urea** (kg/ha) | **HGRP** (kg/ha) | **MOP** (kg/ha) |
|---|---|---|---|
| **Irrigated** | | | |
| Plant crop | **250** | **100** | **200** |
| At planting | 75 | 100 | 100 |
| Between 6 – 12 wks after planting | 175 | | 100 |
| Ratoon crop | **275** | **100** | **200** |
| At planting | 125 | 100 | 100 |
| Between 6 – 12 wks after stubble shaving | 150 | | 100 |

* **TSP** can be used instead of **HGRP** at a rate of 50 kg/ha as a basal application in both irrigated and rain-fed conditions