

**Nutrient Composition of Common Fertilizers (%)**

|     | Name of the fertilizer | Total N | Total P <sub>2</sub> O <sub>5</sub> | Total K <sub>2</sub> O | S    |
|-----|------------------------|---------|-------------------------------------|------------------------|------|
| 1.  | Ammonium sulphate      | 20.6    | -                                   | -                      |      |
| 2.  | Urea                   | 46.0    | -                                   | -                      |      |
| 3.  | Single super phosphate | -       | 16.0                                | -                      |      |
| 4.  | Muriate of potash      | -       | -                                   | 60.0                   |      |
| 5.  | Sulphate of potash     | -       | -                                   | 50.0                   |      |
| 6.  | Diammonium phosphate   | 18.0    | 41.0                                | -                      |      |
| 7.  | 20:20:0:15 Factomphos  | 20.0    | 20.0                                |                        | 15.0 |
| 8.  | N P K (15-15-15)       | 15.0    | 15.0                                | 15.0                   |      |
| 9.  | N P K (17-17-17)       | 17.0    | 17.0                                | 17.0                   |      |
| 10. | N P K (19-19-19)       | 19.0    | 19.0                                | 19.0                   |      |

**Fertilizer dose**

Since fertilizers contain nutrients in varying proportions, the crop's nutrient requirement should first be assessed and then converted into the corresponding quantities of fertilizers to be applied.

**Calculation of fertilizer (kg/ac)**

$$\text{Fertilizer required} = \frac{100}{\% \text{ content in the fertilizer}} \times \text{Recommended dose}$$

For example, the recommended quantity of Ammonium Sulphate (AS) per acre per crop is calculated based on its nitrogen content. Since 100 kg of Ammonium Sulphate contains 20.60 kg of nitrogen (N), the quantity required to supply 28 kg of nitrogen per acre per crop works out to about 140 kg of Ammonium Sulphate (rounded off).

$$\text{Fertilizer required} = \frac{100}{20.60} \times 28 = 136 \text{ kg}$$

Similar way, the requirement of other fertilizers can be calculated.

Soil test-based fertilizer application is a simple, economical, and scientific approach to achieving sustainable mulberry cultivation. By applying fertilizers based on soil test results, farmers can maintain soil health, produce high-quality mulberry leaves, and ultimately enhance cocoon yield and silk quality. Therefore, regular soil testing coupled with need-based fertilizer application should be adopted by all mulberry growers to ensure long-term productivity and profitability.

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## Recommended Fertilizer Management Practices in Mulberry



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Among the various factors influencing successful cocoon production, mulberry leaf plays a dominant role, contributing nearly 38.20% to cocoon yield. Success of sericulture largely depends on both the quality and quantity of mulberry leaves fed to silkworms. High-yielding mulberry varieties with superior genetic potential require adequate and balanced nutrition to sustain continuous production of quality leaves throughout the year. To meet these requirements, judicious application of fertilizers based on crop nutrient demand and soil fertility status is essential. The nutrient requirement for irrigated high-yielding mulberry with 5 crop cycle are:

|                 |   |
|-----------------|---|
| For one year/ha | 350:140:140 kg N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O  |
| For one crop/ha | 70:28:28 kg N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O     |
| For one year/ac | 140:56:56 kg N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O    |
| For one crop/ac | 28:11.2:11.2 kg N:P <sub>2</sub> O <sub>5</sub> :K <sub>2</sub> O |

### Fertilizer requirement of mulberry

Fertilizers provide essential nutrients that promote plant growth and enhance both the yield and quality of mulberry leaves. The primary nutrients required by mulberry plants are nitrogen (N), phosphorus (P), and potassium (K). Various fertilizer combinations may be adopted to meet the recommended nutrient requirements for irrigated mulberry (Table 1).

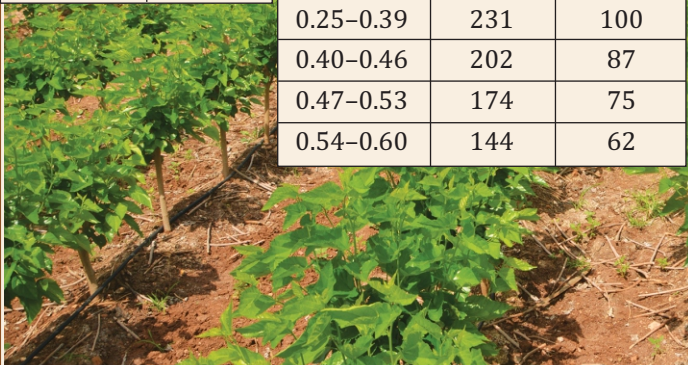
Soil testing provides critical information on soil fertility and forms the basis for nutrient management and fertilizer recommendations. Soil test ratings generally classify soil nutrient status into categories such as low, medium, and high. These classifications help determine the extent of external nutrient supplementation required for optimal mulberry growth.

Table:1 Fertilizer requirement for V1 mulberry/acre/ crop under medium soil fertility (5 crops/year)

| AS (kgs) | SSP (kgs) | MoP (kgs) | Urea (kgs) | 20:20:0:15<br>FACT (kgs) | DAP (kgs) | NPK 15:15:15<br>(kgs) | NPK17:17:17<br>(kgs) | NPK19:19:19<br>(kgs) |
|----------|-----------|-----------|------------|--------------------------|-----------|-----------------------|----------------------|----------------------|
| 140      | 70        | 19        | -          | -                        | -         | -                     | -                    | -                    |
| -        | 70        | 19        | 60         | -                        | -         | -                     | -                    | -                    |
| -        | -         | 19        | 50         | -                        | 25        | -                     | -                    | -                    |
| 120      | -         | 19        | -          | -                        | 25        | -                     | -                    | -                    |
| -        | -         | 19        | 36         | 56                       | -         | -                     | -                    | -                    |
| 84       | -         | 19        | -          | 56                       | -         | -                     | -                    | -                    |
| -        | -         | -         | 36         | -                        | -         | 75                    | -                    | -                    |
| 84       | -         | -         | -          | -                        | -         | 75                    | -                    | -                    |
| -        | -         | -         | 36         | -                        | -         | -                     | 66                   | -                    |
| 84       | -         | -         | -          | -                        | -         | -                     | 66                   | -                    |
| -        | -         | -         | 36         | -                        | -         | -                     | -                    | 50                   |
| 84       | -         | -         | -          | -                        | -         | -                     | -                    | 50                   |

AS-Ammonium sulphate; SSP-Single Super Phosphate; MoP-Muriate of Potash; FACT-Factomphos; DAP-Di-ammonium Phosphate

### Manure and fertilizer recommendations based on soil test results in mulberry

| OC (%)    | FYM | OC (%)   | AS<br>(kg/acre/<br>crop) | Urea<br>(kg/acre/<br>crop) | Available P<br>(kg/ha)<br>crop) | SSP<br>(kg/acre/<br>crop) | Available K<br>(kg/ha) | MoP<br>(kg/acre/<br>crop) |    |
|-----------|-----|--|--------------------------|----------------------------|---------------------------------|---------------------------|------------------------|---------------------------|----|
| <0.30     | 15  |  | 289                      | 126                        | <10                             | 80                        | 0-45                   | 20                        |    |
| 0.30-0.65 | 12  |  | <0.13                    | 260                        | 113                             | 10-15                     | 70                     | 45-90                     | 18 |
| 0.65-1.00 | 10  |  | 0.14-0.26                | 231                        | 100                             | 16-25                     | 65                     | 91-134                    | 16 |
| >1.00     | 08  |  | 0.25-0.39                | 202                        | 87                              | 26-40                     | 60                     | 135-179                   | 14 |
|           |     |  | 0.40-0.46                | 174                        | 75                              | 41-50                     | 55                     | 180-224                   | 12 |
|           |     |  | 0.47-0.53                | 144                        | 62                              | 51-55                     | 50                     | 225-269                   | 10 |
|           |     |  | 0.54-0.60                |                            |                                 | 56-70                     | 45                     | 270-358                   | 08 |
|           |     |  |                          |                            |                                 | 71-90                     | 40                     | 359-400                   | 06 |
|           |     |  |                          |                            | 91-100                          | 35                        |                        |                           |    |

Apply MOP @ 10 kg/acre/crop after skipping of MOP for two consecutive crops, wherever available K is > 400 kg/ha  
FYM: Farm yard manure

If soil fertility status is low for a particular nutrient, higher fertilizer doses are recommended to build up and correct soil fertility. For soils with medium nutrient status, moderate fertilizer applications are sufficient to replenish the nutrients removed by the crop. When soils test high in nutrient content, fertilizer doses can be reduced accordingly without adversely affecting mulberry growth.