Ready reckoners for nitrogenous fertilizers (by Dr. Jagdev Sharma, Senior Scientist (Soil Science) and Dr. A. K. Upadhyay, Senior Scientist (Soil Science)

These ready reckoners have been prepared to help farmers/ users calculate the quantity of commonly used nitrogenous fertilizers for N nutrition of vines. The figures have been rounded to nearest decimal point. The calculations have been made on the basis of minimum N content required to be present in the fertilizer as per the specifications of different fertilizers provided in 'Fertilizers Control Order of India' (Government of India, Ministry of Agriculture and Rural Development (Department of Agriculture and Cooperation). Further information on fertilizer properties can be obtained from the website of the Ministry of Agriculture and Rural Development.

| Urea (46% N), Urea coated (45% N), Urea granular (46% N), | | | | | | |
|---|-------------|----------|----------|------------|--|--|
| Urea super granulated (46% N) | | | | | | |
| A | В | С | D | E | | |
| Quantity of N | Quantity | Quantity | Quantity | Quantity | | |
| needed | of Urea | of Urea | of Urea | of Urea | | |
| (kg)/acre or ha | crystalline | coated | granular | super | | |
| | (46%) | (45% N) | (46% N) | granulated | | |
| | needed | needed | needed | (46% N) | | |
| | for | for | for | needed | | |
| | quantity | quantity | quantity | for | | |
| | under | under | under | quantity | | |
| | column A | column A | column A | under | | |
| | (kg) | (kg) | (kg) | column A | | |
| | | | | (kg)) | | |
| 10 | 21.7 | 22.2 | 21.7 | 21.7 | | |
| 20 | 43.5 | 44.4 | 43.5 | 43.5 | | |
| 20 | 43.3 | 77.7 | 43.3 | 45.5 | | |
| 30 | 65.2 | 66.7 | 65.2 | 65.2 | | |
| 40 | 87.0 | 88.9 | 87.0 | 87.0 | | |
| 50 | 108.7 | 111.1 | 108.7 | 108.7 | | |
| | | | | | | |
| 60 | 130.4 | 133.3 | 130.4 | 130.4 | | |
| 70 | 152.2 | 155.6 | 152.2 | 152.2 | | |
| 80 | 173.9 | 177.8 | 173.9 | 173.9 | | |
| 90 | 195.7 | 200.0 | 195.7 | 195.7 | | |
| 100 | 217.4 | 222.2 | 217.4 | 217.4 | | |

| A | В | C | D | E |
|---|--|---|--|--|
| Quantity of N needed (kg)/acre or ha | Quantity of (CAN) needed for quantity under column A(kg) | Quantity of ammonium-N present in CAN under column B (kg) | Quantity of nitrate- N present in CAN under column B (kg) | Calcium nitrate (20.5%) present in CAN under column B (kg) |
| 10 | 40.0 | 5.0 | 5 | 0.2 |
| 20 | 80.0 | 10.0 | 10 | 0.4 |
| 30 | 120.0 | 15.0 | 15 | 0.6 |
| 40 | 160.0 | 20.0 | 20 | 0.8 |
| 50 | 200.0 | 25.0 | 25 | 1.0 |
| 60 | 240.0 | 30.0 | 30 | 1.2 |
| 70 | 280.0 | 35.0 | 35 | 1.4 |
| 80 | 320.0 | 40.0 | 40 | 1.6 |
| 90 | 360.0 | 45.0 | 45 | 1.8 |
| 100 | 400.0 | 50.0 | 50 | 2.0 |

| Urea Ammonium nitrate (UAN): 32% N liquid | | | | | |
|---|----------|-------------|------------|------------|--|
| A | В | С | D | Е | |
| Quantity of | Quantity | Quantity of | Quantity | Quantity | |
| N needed | of UAN | ammonium- | of | of Urea- | |
| (kg) | needed | N present | nitrate- N | N | |
| | for | in UAN | present in | present in | |
| | quantity | under | UAN | UAN | |
| | under | column B | under | under | |
| | column A | (kg) | column B | column B | |
| | (kg) | | (kg) | (kg) | |
| 10 | 31.3 | 2.4 | 2.4 | 5.2 | |
| 20 | 62.5 | 4.8 | 4.8 | 10.4 | |
| 30 | 93.8 | 7.2 | 7.2 | 15.6 | |
| 40 | 125.0 | 9.6 | 9.6 | 20.8 | |
| 50 | 156.3 | 12.0 | 12.0 | 25.9 | |
| 60 | 187.5 | 14.4 | 14.4 | 31.1 | |
| 70 | 218.8 | 16.8 | 16.8 | 36.3 | |
| 80 | 250.0 | 19.3 | 19.3 | 41.5 | |
| 90 | 281.3 | 21.7 | 21.7 | 46.7 | |
| 100 | 312.5 | 24.1 | 24.1 | 51.9 | |

| Ammonium Sulphate (AS): 20.6 % N and 23% sulphur | | | | | |
|--|----------------------|-----------------------|-------------|-------------|--|
| A | В | С | D | F | |
| Quantity of N | Quantity of ammonium | Quantity of ammonium- | Quantity of | Quantity of | |
| needed | sulphate | N present | nitrate- | sulphur | |
| (kg) | needed for | in AS | N | present | |
| (8) | quantity | under | present | in AS | |
| | under | column B | in AS | under | |
| | column A | (kg) | under | column | |
| | (kg) | | column | B (kg) | |
| | | | B (kg) | | |
| 10 | 48.5 | 10 | - | 11.2 | |
| 20 | 97.1 | 20 | - | 22.3 | |
| 30 | 145.6 | 30 | - | 33.5 | |
| 40 | 194.2 | 40 | - | 44.7 | |
| 50 | 242.7 | 50 | - | 55.8 | |
| 60 | 291.3 | 60 | - | 67.0 | |
| 70 | 339.8 | 70 | - | 78.2 | |
| 80 | 388.3 | 80 | - | 89.3 | |
| 90 | 436.9 | 90 | - | 100.5 | |
| 100 | 485.4 | 100 | - | 111.7 | |

| Ammonium nitrate phosphate (23-23-0) | | | | | |
|--------------------------------------|---------------------|---------------------|----------------------|-------------|--|
| A | В | C | D | Е | |
| Quantity of N | Quantity of 23-23-0 | Quantity ammonical- | Quantity of nitrate- | Quantity of | |
| needed | fertilizer | N present | N present | Water | |
| (kg) | needed for | in the | in the | soluble | |
| | quantity | fertilizer | fertilizer | P | |
| | under | under | under | present | |
| | column A | column B | column B | in the | |
| | (kg) | (kg) | (kg) | fertilizer | |
| | | | | under | |
| | | | | Column | |
| | | | | B (kg) | |
| 10 | 43.5 | 5.7 | 4.3 | 8.9 | |
| 20 | 87.0 | 11.3 | 8.7 | 17.8 | |
| 30 | 130.4 | 17.0 | 13.0 | 26.7 | |
| 40 | 173.9 | 22.6 | 17.4 | 35.7 | |
| 50 | 217.4 | 28.3 | 21.7 | 44.6 | |
| 60 | 260.9 | 33.9 | 26.1 | 53.5 | |
| 70 | 304.3 | 39.6 | 30.4 | 62.4 | |
| 80 | 347.8 | 45.2 | 34.8 | 71.3 | |
| 90 | 391.3 | 50.9 | 39.1 | 80.2 | |
| 100 | 434.8 | 56.5 | 43.5 | 89.1 | |

| Nitrophosphate (23-23-0) | | | | | | |
|--------------------------|--|---|--|---|--|--|
| Α | В | C | D | E | F | |
| Quantity of N needed | Quantity of 23-23- | Quantity ammonium- N present | Quantity of nitrate-N | Quantity of Water | Quantity of calcium | |
| (kg) | fertilizer needed for quantity under column A (kg) | in the fertilizer under column B (kg) | present in the fertilizer under column B (kg) | soluble P present in the fertilizer under column B (kg) | nitrate present in the fertilizer under column B (kg | |
| 10 | 43.5 | 5.0 | 5.0 | 8.0 | 0.43 | |
| 20 | 87.0 | 10.0 | 10.0 | 16.1 | 0.87 | |
| 30 | 130.4 | 15.0 | 15.0 | 24.1 | 1.30 | |
| 40 | 173.9 | 20.0 | 20.0 | 32.2 | 1.74 | |
| 50 | 217.4 | 25.0 | 25.0 | 40.2 | 2.17 | |
| 60 | 260.9 | 30.0 | 30.0 | 48.3 | 2.61 | |
| 70 | 304.3 | 35.0 | 35.0 | 56.3 | 3.04 | |
| 80 | 347.8 | 40.0 | 40.0 | 64.3 | 3.48 | |
| 90 | 391.3 | 45.0 | 45.0 | 72.4 | 3.91 | |
| 100 | 434.8 | 50.0 | 50.0 | 80.4 | 4.35 | |