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| **Fruit** | **Drainage/Soil Texture** | | **Soil Salinity Tolerance (dS/m)** | | **CEC Requirements (cmol/kg)** | **Organic Carbon (%)** | | **Nitrogen Forms & Range (kg/ha)** | | **Phosphorus Forms & Range (kg/ha)** | | **Potassium Forms & Range (kg/ha)** | | **Soil pH Range** | | **Climate** | |
| **Banana** | Well – Drained/  Fertile loamy  soil | | <2.0 (sensitive) [1](https://extension.sdstate.edu/sites/default/files/2020-04/P-00157.pdf) | | 15-25 [2](https://www.researchtrend.net/bfij/pdf/Soil%20Suitability%20of%20Some%20Major%20Fruit%20Crops%20for%20Sustainable%20Production%20in%20the%20IGP%20Region%20of%20India-A%20Case%20Study%20Ashok%20Kumar%20700.pdf) | 1.5-3.0 [2](https://www.researchtrend.net/bfij/pdf/Soil%20Suitability%20of%20Some%20Major%20Fruit%20Crops%20for%20Sustainable%20Production%20in%20the%20IGP%20Region%20of%20India-A%20Case%20Study%20Ashok%20Kumar%20700.pdf) | | **Urea (46% N)**: 435-652 kg/ha **Ammonium Sulfate**: 1,000-1,500 kg/ha **Range**: 200-300 kg N/ha [3](https://agritech.tnau.ac.in/horticulture/FERTILIZER%20SCHEDULE%20FOR%20FRUIT%20CROPS.pdf)[4](https://www.bacfertilizers.com/fertilizer/banana-fertilizer) | | **DAP (18-46-0)**: 109-217 kg/ha **SSP (16-20% P)**: 250-625 kg/ha **Range**: 50-100 kg P/ha [3](https://agritech.tnau.ac.in/horticulture/FERTILIZER%20SCHEDULE%20FOR%20FRUIT%20CROPS.pdf)[5](https://www.cropnutrition.com/resource-library/diammonium-phosphate/) | | **MOP (60% K2O)**: 500-667 kg/ha **SOP (50% K2O)**: 600-800 kg/ha **Range**: 300-400 kg K/ha [3](https://agritech.tnau.ac.in/horticulture/FERTILIZER%20SCHEDULE%20FOR%20FRUIT%20CROPS.pdf)[6](https://eos.com/blog/potash-fertilizers/) | | 6.0-7.5 | | 13°C and 38°C, 75-85% relative humidity | |
| **Onion** | Good Drainage/  deep, friable loam and alluvial soils | | <2.5 (sensitive)[3](https://nhb.gov.in/pdf/vegetable/onion/oni012.pdf) | | 10-25[3](https://nhb.gov.in/pdf/vegetable/onion/oni012.pdf) | 1.0-2.5[3](https://nhb.gov.in/pdf/vegetable/onion/oni012.pdf) | | **Urea**: 109-217 kg/ha **Ammonium Sulfate**: 238-476 kg/ha **Range**: 50-100 kg N/ha[2](https://agritech.tnau.ac.in/horticulture/FERTILIZER%20SCHEDULE%20FOR%20VEGETABLES.pdf) | | **DAP**: 130-261 kg/ha **TSP (44-48% P)**: 125-278 kg/ha **Range**: 60-125 kg P/ha[2](https://agritech.tnau.ac.in/horticulture/FERTILIZER%20SCHEDULE%20FOR%20VEGETABLES.pdf) | | **MOP**: 42-83 kg/ha **SOP**: 50-100 kg/ha **Range**: 25-50 kg K/ha[2](https://agritech.tnau.ac.in/horticulture/FERTILIZER%20SCHEDULE%20FOR%20VEGETABLES.pdf) | | 5.8-6.5 | | Thrives in mild, temperate, tropical, and subtropical climates. Short-day onions are grown in plains (10-12 hours of sunlight), while long-day onions are grown in hills (13-14 hours). | |
| **Tomato** | Well -Drained/  sandy or red loam soils rich in organic matter | | <2.5 (sensitive)[4](https://tomatocultivation.com/tomato-soil-requirement.html) | | 12-25[4](https://tomatocultivation.com/tomato-soil-requirement.html) | 1.5-3.0[4](https://tomatocultivation.com/tomato-soil-requirement.html) | | **Urea**: 163-326 kg/ha **Ammonium Nitrate (33.5% N)**: 224-448 kg/ha **Range**: 75-150 kg N/ha[2](https://agritech.tnau.ac.in/horticulture/FERTILIZER%20SCHEDULE%20FOR%20VEGETABLES.pdf) | | **MAP (50-52% P)**: 192-385 kg/ha **DAP**: 217-435 kg/ha **Range**: 100 kg P/ha[2](https://agritech.tnau.ac.in/horticulture/FERTILIZER%20SCHEDULE%20FOR%20VEGETABLES.pdf) | | **SOP**: 100 kg/ha **Potassium Nitrate (46% K)**: 109 kg/ha **Range**: 50 kg K/ha[2](https://agritech.tnau.ac.in/horticulture/FERTILIZER%20SCHEDULE%20FOR%20VEGETABLES.pdf) | | 6.0-7.0[4](https://tomatocultivation.com/tomato-soil-requirement.html) | | warm climates (21-24°C) | |
| **Grapes** | Well – Drained/  loamy soil with low water table | | 1.5-4.2 (moderately sensitive) [1](https://extension.sdstate.edu/sites/default/files/2020-04/P-00157.pdf) | | 10-20 [2](https://www.researchtrend.net/bfij/pdf/Soil%20Suitability%20of%20Some%20Major%20Fruit%20Crops%20for%20Sustainable%20Production%20in%20the%20IGP%20Region%20of%20India-A%20Case%20Study%20Ashok%20Kumar%20700.pdf) | 1.5-2.5 [2](https://www.researchtrend.net/bfij/pdf/Soil%20Suitability%20of%20Some%20Major%20Fruit%20Crops%20for%20Sustainable%20Production%20in%20the%20IGP%20Region%20of%20India-A%20Case%20Study%20Ashok%20Kumar%20700.pdf) | | **Urea**: 261-391 kg/ha **Ammonium Sulfate**: 571-857 kg/ha **Range**: 120-180 kg N/ha [3](https://agritech.tnau.ac.in/horticulture/FERTILIZER%20SCHEDULE%20FOR%20FRUIT%20CROPS.pdf)[8](https://ucanr.edu/sites/default/files/2019-03/301166.pdf) | | **MAP**: 115-173 kg/ha **Triple Superphosphate**: 125-200 kg/ha **Range**: 60-90 kg P/ha [3](https://agritech.tnau.ac.in/horticulture/FERTILIZER%20SCHEDULE%20FOR%20FRUIT%20CROPS.pdf)[15](https://pmc.ncbi.nlm.nih.gov/articles/PMC10019695/) | | **Potassium Nitrate**: 326-435 kg/ha **SOP**: 300-400 kg/ha **Range**: 150-200 kg K/ha [3](https://agritech.tnau.ac.in/horticulture/FERTILIZER%20SCHEDULE%20FOR%20FRUIT%20CROPS.pdf)[10](https://neufarm.com/potassium-nitrate-potassium-sulphate/) | | 6.5-7.0 | | **15°C and 40°C (59°F - 104°F)** during the growing and fruiting periods, with an optimal range for daily growth and development being around **20°C to 30°C (68°F - 86°F)** | |
| Well-drained/  loamy or sandy loam soils | | **Potato** | | <2.0 (sensitive)[1](https://nhb.gov.in/bulletin_files/vegetable/potato/pot012.pdf) | | | 8-20[1](https://nhb.gov.in/bulletin_files/vegetable/potato/pot012.pdf) | | 1.5-3.0[1](https://nhb.gov.in/bulletin_files/vegetable/potato/pot012.pdf) | | **Urea (46% N)**: 261-522 kg/ha **Ammonium Sulfate (21% N)**: 571-1,143 kg/ha **Range**: 120-240 kg N/ha[2](https://agritech.tnau.ac.in/horticulture/FERTILIZER%20SCHEDULE%20FOR%20VEGETABLES.pdf) | | **DAP (18-46-0)**: 522-1,043 kg/ha **SSP (16-20% P)**: 1,200-1,500 kg/ha **Range**: 240 kg P/ha[2](https://agritech.tnau.ac.in/horticulture/FERTILIZER%20SCHEDULE%20FOR%20VEGETABLES.pdf) | | **MOP (60% K2O)**: 200 kg/ha **SOP (50% K2O)**: 240 kg/ha **Range**: 120 kg K/ha[2](https://agritech.tnau.ac.in/horticulture/FERTILIZER%20SCHEDULE%20FOR%20VEGETABLES.pdf) | | 5.2-6.4[1](https://nhb.gov.in/bulletin_files/vegetable/potato/pot012.pdf) | | Optimal temperatures are 24°C for vegetative growth and 20°C for tuber development. |