

Complete Fertigation Guidelines for All Major Crops

Introduction

Fertigation is the process of applying fertilizers through drip irrigation systems. It is one of the most effective modern farming methods because nutrients are delivered directly to the root zone of the crop. This improves fertilizer efficiency, reduces water wastage, enhances plant growth, and increases crop productivity.

Compared to traditional fertilizer application methods, fertigation can:

- Save 30–50% irrigation water
- Reduce fertilizer wastage by 20–40%
- Improve nutrient absorption efficiency up to 90%
- Increase crop yield by 15–40%
- Reduce labor costs by 40–60%

Fertigation is suitable for field crops, vegetable crops, fruit crops, plantation crops, spice crops, flower crops, and greenhouse cultivation.

1. Tomato Crop Fertigation

Recommended Fertilizers

- NPK 19:19:19
- Calcium Nitrate
- Potassium Nitrate
- Micronutrients

Nutrient Percentage

- Nitrogen: 25%
- Phosphorus: 20%
- Potassium: 55%

Frequency

- 2–3 times per week

Benefits

- Better flowering and fruit setting
 - Improved fruit size and quality
 - Yield increase by 20–30%
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2. Chilli Crop Fertigation

Recommended Fertilizers

- Urea
- MAP
- Potassium Nitrate

Nutrient Percentage

- Nitrogen: 30%
- Phosphorus: 20%
- Potassium: 50%

Frequency

- 2 times per week

Benefits

- Reduced flower dropping
 - Improved fruit quality
 - Yield increase by 15–25%
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3. Banana Crop Fertigation

Recommended Fertilizers

- Urea
- SOP
- Calcium Nitrate
- Magnesium Sulphate

Nutrient Percentage

- Nitrogen: 40%
- Phosphorus: 20%
- Potassium: 40%

Frequency

- 3 times per week

Benefits

- Better bunch weight
 - Uniform fruit growth
 - Yield increase by 30–40%
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4. Coconut Crop Fertigation

Recommended Fertilizers

- Water Soluble NPK
- Magnesium Sulphate
- Boron

Nutrient Percentage

- Nitrogen: 35%
- Phosphorus: 15%
- Potassium: 50%

Frequency

- Weekly

Benefits

- Improved nut formation
 - Better coconut size
 - Yield increase by 15–20%
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5. Sugarcane Crop Fertigation

Recommended Fertilizers

- Urea
- Potash
- DAP

Nutrient Percentage

- Nitrogen: 45%
- Phosphorus: 20%
- Potassium: 35%

Frequency

- Weekly

Benefits

- Better cane thickness
 - Improved sugar recovery
 - Yield increase by 20–25%
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6. Cotton Crop Fertigation

Recommended Fertilizers

- NPK Fertilizers
- Micronutrients

Nutrient Percentage

- Nitrogen: 35%
- Phosphorus: 25%
- Potassium: 40%

Frequency

- 2 times per week

Benefits

- Better boll formation
 - Improved fiber quality
 - Yield increase by 15–30%
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7. Grapes Crop Fertigation

Recommended Fertilizers

- Calcium Nitrate
- SOP
- Magnesium Sulphate

Nutrient Percentage

- Nitrogen: 20%
- Phosphorus: 20%
- Potassium: 60%

Frequency

- 2–3 times per week

Benefits

- Improved berry size
 - Better sweetness
 - Yield increase by 20–35%
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8. Pomegranate Crop Fertigation

Recommended Fertilizers

- Water Soluble NPK
- Micronutrients

Nutrient Percentage

- Nitrogen: 25%
- Phosphorus: 20%
- Potassium: 55%

Frequency

- Weekly

Benefits

- Reduced fruit cracking
 - Better fruit color
 - Yield increase by 20–30%
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9. Turmeric Crop Fertigation

Recommended Fertilizers

- Urea
- DAP
- Potash

Nutrient Percentage

- Nitrogen: 40%

- Phosphorus: 25%
- Potassium: 35%

Frequency

- Weekly

Benefits

- Better rhizome growth
 - Improved turmeric quality
 - Yield increase by 15–25%
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10. Onion Crop Fertigation

Recommended Fertilizers

- Urea
- Calcium Nitrate
- SOP

Nutrient Percentage

- Nitrogen: 30%
- Phosphorus: 20%
- Potassium: 50%

Frequency

- 2 times per week

Benefits

- Better bulb formation
 - Improved storage quality
 - Yield increase by 20–25%
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11. Potato Crop Fertigation

Recommended Fertilizers

- Urea
- MAP
- Potassium Nitrate

Nutrient Percentage

- Nitrogen: 35%
- Phosphorus: 20%
- Potassium: 45%

Frequency

- 2–3 times per week

Benefits

- Better tuber development
 - Improved size and quality
 - Yield increase by 20–30%
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12. Cabbage Crop Fertigation

Recommended Fertilizers

- NPK 19:19:19
- Calcium Nitrate

Nutrient Percentage

- Nitrogen: 40%
- Phosphorus: 20%
- Potassium: 40%

Frequency

- 2 times per week

Benefits

- Better head formation
 - Improved leaf growth
 - Yield increase by 15–20%
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13. Cauliflower Crop Fertigation

Recommended Fertilizers

- Urea
- Potassium Nitrate
- Micronutrients

Nutrient Percentage

- Nitrogen: 35%
- Phosphorus: 20%
- Potassium: 45%

Frequency

- 2 times per week

Benefits

- Improved curd size
 - Better crop uniformity
 - Yield increase by 15–25%
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14. Brinjal Crop Fertigation

Recommended Fertilizers

- NPK Water Soluble Fertilizers
- Calcium Nitrate

Nutrient Percentage

- Nitrogen: 30%
- Phosphorus: 20%
- Potassium: 50%

Frequency

- 2–3 times per week

Benefits

- Better flowering
 - Improved fruit size
 - Yield increase by 20–30%
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15. Okra Crop Fertigation

Recommended Fertilizers

- Urea
- SOP
- Micronutrients

Nutrient Percentage

- Nitrogen: 35%
- Phosphorus: 20%
- Potassium: 45%

Frequency

- Weekly

Benefits

- Improved pod quality
 - Better plant growth
 - Yield increase by 15–20%
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16. Papaya Crop Fertigation

Recommended Fertilizers

- Water Soluble NPK
- Magnesium Sulphate

Nutrient Percentage

- Nitrogen: 30%
- Phosphorus: 20%
- Potassium: 50%

Frequency

- Weekly

Benefits

- Better fruit size
 - Improved sweetness
 - Yield increase by 20–30%
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17. Mango Crop Fertigation

Recommended Fertilizers

- NPK Fertilizers
- SOP
- Micronutrients

Nutrient Percentage

- Nitrogen: 20%
- Phosphorus: 20%
- Potassium: 60%

Frequency

- Weekly

Benefits

- Better flowering
 - Improved fruit quality
 - Increased fruit retention
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18. Guava Crop Fertigation

Recommended Fertilizers

- Water Soluble NPK
- Calcium Nitrate

Nutrient Percentage

- Nitrogen: 25%
- Phosphorus: 20%
- Potassium: 55%

Frequency

- Weekly

Benefits

- Better fruit size
 - Improved sweetness
 - Yield increase by 20–25%
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19. Watermelon Crop Fertigation

Recommended Fertilizers

- Potassium Nitrate
- Calcium Nitrate
- MAP

Nutrient Percentage

- Nitrogen: 25%
- Phosphorus: 20%
- Potassium: 55%

Frequency

- 2–3 times per week

Benefits

- Better fruit development
 - Increased sweetness
 - Improved market quality
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20. Cucumber Crop Fertigation

Recommended Fertilizers

- NPK 19:19:19
- Calcium Nitrate

Nutrient Percentage

- Nitrogen: 30%
- Phosphorus: 20%
- Potassium: 50%

Frequency

- 2–3 times per week

Benefits

- Better vine growth
 - Improved fruit yield
 - Higher water efficiency
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General Fertigation Best Practices

Water Management

- Maintain proper irrigation scheduling
- Avoid over-irrigation
- Monitor soil moisture regularly

Fertilizer Management

- Use only water-soluble fertilizers
- Avoid incompatible fertilizer mixing
- Apply fertilizers in split doses

System Maintenance

- Clean filters regularly
 - Flush drip pipelines periodically
 - Inspect emitters for clogging
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Common Fertigation Efficiency

Improvements

Parameter	Improvement
Water Saving	30–50%
Fertilizer Saving	20–40%
Yield Increase	15–40%
Nutrient Efficiency	80–90%
Labor Reduction	40–60%

Conclusion

Fertigation is an advanced farming technique that improves nutrient management and irrigation efficiency in agriculture. Proper crop-wise fertigation scheduling helps farmers save water, reduce fertilizer losses, improve crop quality, and achieve higher yields.

With the adoption of drip irrigation and fertigation systems, farmers can move towards sustainable agriculture, smart farming, and precision nutrient management for long-term profitability and productivity.