

# Section 10: Soil Test Levels & Recommendations

Soil testing can provide a wealth of data, but additional information is needed to transfer this data into useful applications. Years of testing has provided what is thought to be the ideal nutrient levels for various crops to grow to their maximum yield potential. Recommendations are designed to help maintain or restore these ideal nutrient levels throughout a field.

| Nutrient   | Symbol    | Function  | Ideal Level |
|------------|-----------|---|-------------|
| Potassium  | <b>K</b>  | Efficient water use, disease resistance   | 180+ ppm    |
| Phosphorus | <b>P</b>  | Significant role in photosynthesis, crucial in seed and root development            | 25-30 ppm   |
| Nitrogen   | <b>N</b>  | Chlorophyll formation, efficient water use  |             |
| Calcium    | <b>Ca</b> | Exchangeable cation necessary for transport of nutrients                            |             |
| Magnesium  | <b>Mg</b> | Chlorophyll formation, aid in production of starches & sugars                       |             |
| Sulfur     | <b>S</b>  | Element in some amino acids essential for growth                                    | 7-12 ppm    |
| Boron      | B         | Needed for protein synthesis and associated with seed set and water retention       | 1.5-2.5 ppm |
| Copper     | Cu        | Enzyme activator, role in reproduction, and indirect role in chlorophyll production | 0.9-1.5 ppm |
| Iron       | Fe        | Involved in chlorophyll production  | 12-25 ppm   |
| Manganese  | Mn        | Involved in breakdown of carbohydrates and metabolism of nitrogen                   | 15-30 ppm   |
| Molybdenum | Mo        | Needed for nitrogen fixation  |             |
| Zinc       | Zn        | Aids in production of some amino acids  | 1+ ppm      |

Items in red are considered primary nutrients

Items in blue are considered secondary nutrients

Items in gray are considered micronutrients (trace elements)

The following tables provide information about soil test levels and subsequent recommendations. These are intended only as guidelines. If you have a specific question or concern please contact us. One of our agronomists will setup a time to talk with you.

# Corn

## Potassium to Apply (lbs./Acre)

| Test Level | Test Result (ppm) | Yield Goal (Bu./Acre) |         |         |         |         |         |         |         |
|------------|-------------------|-----------------------|---------|---------|---------|---------|---------|---------|---------|
|            |                   | 100                   | 100-120 | 120-140 | 140-160 | 160-180 | 180-200 | 200-220 | 220-250 |
| VL         | 0-25              | 100                   | 110     | 120     | 140     | 160     | 190     | 200     | 210     |
| VL         | 25-60             | 90                    | 100     | 110     | 130     | 150     | 180     | 190     | 200     |
| L          | 60-70             | 75                    | 85      | 95      | 115     | 135     | 165     | 175     | 185     |
| L          | 70-80             | 70                    | 80      | 90      | 110     | 130     | 160     | 170     | 180     |
| L          | 80-90             | 65                    | 75      | 85      | 105     | 125     | 155     | 165     | 175     |
| M          | 90-115            | 60                    | 70      | 80      | 100     | 120     | 150     | 160     | 170     |
| M          | 115-130           | 50                    | 60      | 70      | 90      | 110     | 140     | 150     | 160     |
| H          | 130-145           | 45                    | 55      | 65      | 85      | 105     | 135     | 145     | 155     |
| H          | 145-160           | 40                    | 50      | 60      | 80      | 100     | 130     | 140     | 150     |
| H          | 160-170           | 35                    | 45      | 55      | 75      | 95      | 125     | 135     | 145     |
| VH         | 170-190           | 30                    | 40      | 50      | 70      | 90      | 120     | 130     | 140     |
| VH         | 190-220           | 20                    | 30      | 40      | 60      | 80      | 110     | 120     | 130     |
| VH         | 220+              | 0                     | 10      | 20      | 40      | 60      | 90      | 100     | 110     |

## Phosphorus to Apply (lbs./Acre)

| Test Level | Test Result (ppm) | Yield Goal (Bu./Acre) |         |         |         |         |         |         |         |
|------------|-------------------|-----------------------|---------|---------|---------|---------|---------|---------|---------|
|            |                   | 100                   | 100-120 | 120-140 | 140-160 | 160-180 | 180-200 | 200-220 | 220-250 |
| VL         | 0-3               | 120                   | 110     | 110     | 110     | 110     | 110     | 110     | 110     |
| VL         | 3-6               | 100                   | 100     | 100     | 100     | 100     | 110     | 110     | 110     |
| L          | 6-9               | 90                    | 95      | 100     | 100     | 100     | 110     | 110     | 110     |
| L          | 9-12              | 85                    | 90      | 100     | 100     | 100     | 100     | 110     | 110     |
| L          | 12-15             | 80                    | 80      | 90      | 100     | 100     | 100     | 100     | 110     |
| M          | 15-18             | 60                    | 60      | 80      | 95      | 100     | 100     | 100     | 100     |
| M          | 18-21             | 45                    | 50      | 60      | 80      | 90      | 100     | 100     | 100     |
| H          | 21-24             | 40                    | 40      | 50      | 70      | 90      | 90      | 90      | 95      |
| H          | 24-27             | 40                    | 40      | 40      | 40      | 40      | 40      | 90      | 95      |
| H          | 27-30             | 40                    | 40      | 40      | 40      | 40      | 40      | 40      | 40      |
| VH         | 30-40             | 40                    | 40      | 40      | 40      | 40      | 40      | 40      | 40      |
| VH         | 40-50             | 20                    | 20      | 20      | 20      | 20      | 20      | 20      | 20      |
| VH         | 50+               | 0                     | 0       | 0       | 0       | 0       | 0       | 0       | 0       |

Nitrogen to Apply (lbs./Acre) = 1.2 x (Yield Goal)







### Lime to Apply (lbs./Acre)

| Test Result<br>(Buffer pH) | ECCE  |       |
|----------------------------|-------|-------|
|                            | 6.5   | 7.0   |
| 7.0                        | 0     | 1500  |
| 6.9                        | 0     | 2500  |
| 6.8                        | 800   | 3600  |
| 6.7                        | 1700  | 4700  |
| 6.6                        | 2800  | 5900  |
| 6.5                        | 3700  | 6900  |
| 6.4                        | 4700  | 8000  |
| 6.3                        | 5600  | 9100  |
| 6.2                        | 6700  | 10300 |
| 6.1                        | 7600  | 11400 |
| 6.0                        | 8600  | 12400 |
| 5.9                        | 9500  | 13500 |
| 5.8                        | 10600 | 14700 |
| 5.7                        | 11500 | 15900 |

### Zinc to Apply (lbs./Acre)

| Test Level | Test Result (ppm) | Recommendation |
|------------|-------------------|----------------|
| VL         | 0-0.5             | 8              |
| L          | 0.5-1             | 6              |
| M          | 1-3               | 3              |
| H          | 3-6               | 2              |
| VH         | 6+                | 0              |

### Boron to Apply (lbs./Acre)

| Test Level | Test Result (ppm) | Recommendation |
|------------|-------------------|----------------|
| VL         | 0-0.3             | 3              |
| L          | 0.3-0.5           | 2              |
| M          | 0.5-1.2           | 1              |
| H          | 1.2-2.0           | 0              |
| VH         | 2+                | 0              |

### Iron to Apply (lbs./Acre)

| Test Level | Test Result (ppm) | Recommendation |
|------------|-------------------|----------------|
| VL         | 0-5               | 2              |
| L          | 5-10              | 1              |
| M          | 10-16             | 0              |
| H          | 16-25             | 0              |
| VH         | 25+               | 0              |

### Manganese to Apply (lbs./Acre)

| Test Level | Test Result (ppm) | Recommendation |
|------------|-------------------|----------------|
| VL         | 0-5               | 8              |
| L          | 5-8               | 6              |
| M          | 8-12              | 3              |
| H          | 12-30             | 1              |
| VH         | 30+               | 0              |

### Copper to Apply (lbs./Acre)

| Test Level | Test Result (ppm) | Recommendation |
|------------|-------------------|----------------|
| VL         | 0-0.3             | 4              |
| L          | 0.3-0.8           | 3              |
| M          | 0.8-1.2           | 2              |
| H          | 1.2-2.5           | 0              |
| VH         | 2.5+              | 0              |

### Sulfur to Apply (lbs./Acre)

| Test Level | Test Result (ppm) | Recommendation |
|------------|-------------------|----------------|
| VL         | 0-3               | 30             |
| L          | 3-5               | 20             |
| M          | 5-8               | 10             |
| H          | 8-10              | 0              |
| VH         | 10+               | 0              |