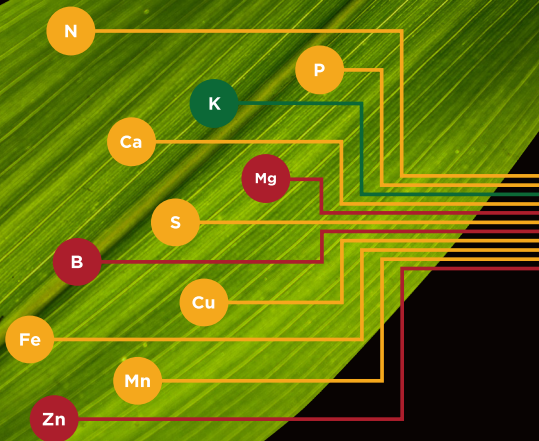




A GUIDE TO

DEFEATING NUTRIENT DEFICIENCIES



CROP COACH[®]



YOUR ONLINE CROP STRATEGIST™

Our CropCoach web application makes customized product recommendations based on nutrient deficiencies, helping to maximize yield and profit.

GET STARTED TODAY AT
CROP COACH.COM

easily accessible by phone, tablet, and computer



HOW CROP COACH WORKS

- 1 GATHER TISSUE SAMPLES** during the vegetative stage and submit for testing.
- 2 GO TO CROP COACH.COM** and select the “Defeat Deficiencies” option, once you receive your tissue analysis.
- 3 ENTER TISSUE TEST RESULTS** with your report number from A&L Great Lakes Labs or input your own tissue results.
- 4 ANALYZE NUTRIENT LEVELS AND SELECT PRODUCTS** to address particular macro and micronutrient needs.
- 5 DEFEAT IN-SEASON NUTRIENT DEFICIENCIES** and increase ROI with your customized foliar program.



N

P

K

Ca

Mg

S

B

Cu

Fe

Mn

Zn





IPNI | Source: S. Srinivasan



IPNI | Source: L.A. Zano Jr.

NITROGEN

ROLES OF NITROGEN

- Component of vitamins, amino acids, energy systems
- Increases protein content
- Mobile and moves to root surfaces for absorption

SYMPTOMS

Corn: yellow chlorosis and brown necrosis on old leaves

Soybeans: uniform yellowing on the lower leaves; stunted growth and leaf drying

RECOMMENDED PRODUCTS

OverPass® CF, OverPass® SF, or OverPass® SF Plus

OverPass products contain 25% slow release nitrogen to feed into the plant to extend absorption and minimize any leaf interaction.

Foliar: 4-8 quarts

Super 72™ | 28-0-0 (25% SRN)

Super 72 is 28% liquid nitrogen, with 72% of that nitrogen in a slow release form. The estimated release pattern is 8-12 weeks for improved efficiency.

Soil: Varies | Foliar: 2-3 gallons



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IPNI | Source: Ch. S. Rao



IPNI | Source: L.A. Zano, Jr.

PHOSPHORUS

ROLES OF PHOSPHORUS

- Captures and converts the sun's energy
- Stimulates root development
- Increases stalk and stem strength

SYMPTOMS

Corn: discoloration on leaves advancing along the leaf margins

Soybeans: plants are smaller and have small leaflets; slow and stunted growth

RECOMMENDED PRODUCTS

Diamond | Custom Blends Available 100% Orthophosphate

Diamond products are 100% orthophosphate low-salt liquid fertilizers. Phosphorus in this form is immediately available to the plant.

Soil: Varies | Foliar: 1-3 gallons

GoldStart® | Custom Blends Available 80/20 ortho-to-polyphosphate

GoldStart products are the most popular low-salt 80/20 ratio of ortho-to-polyphosphate liquid fertilizer in the PureGrade® product line.

Soil: Varies | Foliar: 1-3 gallons



IPNI | Source: E. Pasuquin, C. Witt



IPNI | Source: Claudinei Kappes

POTASSIUM

ROLES OF POTASSIUM

- Enhances enzyme actions, aiding in photosynthesis
- Produces grains rich in starch
- Increases root growth and improves drought tolerance

SYMPTOMS

Corn: Chlorosis along the leaf margins and tips of older leaves; spreads from tip to base then turns to necrosis

Soybeans: yellowing of leaf margins on older leaves; leaf edges may become brown and necrotic

RECOMMENDED PRODUCTS

Korreck™ | 3-0-20

Korreck is an available source of potassium which is well suited for foliar application on all crop types.

Soil: 4-8 quarts | Foliar: 2-4 quarts

Bean Maker | 3-0-15 + 1.0 Mn, 0.25 B

Bean Maker is a combination of a highly available, mild form of potassium, EDTA chelated manganese, and a safe, effective boron source.

Soil: 4-8 quarts | Foliar: 2-4 quarts



IPNI | Source: M.K. Sharma and P. Kumar



IPNI | Source: T.L. Roberts

CALCIUM

ROLES OF CALCIUM

- Helps form cell walls to strengthen the plant
- Stimulates root and leaf development
- Affects uptake and activity of other nutrients

SYMPTOMS

Corn: young leaves that remain rolled up and joined together at the tips

Soybeans: young leaves remain rolled up

RECOMMENDED PRODUCTS

Calcium 3% | 3.0 Ca

EDTA Calcium 3% is a clear, clean, pure, and true liquid solution. It is designed for use in liquid fertilizers and suspensions.

Soil: 1-2 quarts | Foliar: 1-2 pints

Eazy™ Cal 10% | 8-0-0 + 10.0 Ca

Eazy Cal 10% works in the field by providing calcium in an immediately available form for plants. It contains no suspended particles.

Soil: 4-8 quarts | Foliar: 2-4 quarts



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IPNI | Source: D.L. Armstrong



IPNI | Source: Eros A B Francisco

MAGNESIUM

ROLES OF MAGNESIUM

- Acts as a phosphorus carrier
- Improves root growth
- Required for better formation and thus better nutrient/water efficiency

SYMPTOMS

Corn: lower leaves show reddening or browning of leaf tips and margins

Soybeans: pale green leaves with yellow mottling between veins; leaves may appear to be speckled bronze

RECOMMENDED PRODUCTS

Magnesium 2.5% | 2.5 Mg

EDTA Magnesium 2.5% is a clear, clean, pure, and true, liquid solution. It is compatible with most fungicides, insecticides, and herbicides.

Soil: 1-2 quarts | Foliar: 1-3 pints



IPNI | Source: M.K. Sharma and P. Kumar



IPNI | Source: V. Casarin

SULFUR

ROLES OF SULFUR

- Appears in every living cell
- Important in photosynthesis and winter crop hardiness
- Required for synthesis of certain amino acids and proteins

SYMPTOMS

Corn: pale green upper leaves and dark green lower leaves

Soybeans: stunted plants with pale green color; chlorosis may be more apparent on upper leaves

RECOMMENDED PRODUCTS

MicroNourish®

4-0-0 + 3.0 S, 0.25 B, 3.0 Mn, 2.0 Zn

MicroNourish is a highly compatible micronutrient package designed to improve plant health and increase yield.

Foliar: 1-2 quarts

OverPass® CF | 22-0-2 + 1.0 S, 0.5 B

OverPass CF is a chloride-free foliar fertilizer that contains 25% slow release nitrogen to feed into the corn plant to extend absorption and minimize any leaf interaction.

Foliar: 4-8 quarts



IPNI | Source: J. E. Espinosa



IPNI | Source: B. R. Golden

BORON

ROLES OF BORON

- Improves seed set under stressful conditions
- Important cell wall component

SYMPTOMS

Corn: brittle leaves and small dead spots; reduced tassels and ear shoots

Soybeans: shortened internodes; yellowing or reddening of upper leaves

RECOMMENDED PRODUCTS

Boron 10% | 10.0 B

Boron prevents and corrects deficiencies and can be used on all crops. It is designed for use with liquid fertilizers and Eezy Cal 10% liquid calcium.

Soil: 1-2 quarts | Foliar: 1-2 pints

OverPass® CF or OverPass® SF

OverPass products contain 25% slow release nitrogen to feed into the plant to extend absorption and minimize any leaf interaction.

Foliar: 4-8 quarts



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COPPER

ROLES OF COPPER

- Most immobile of the micronutrients
- Necessary for chlorophyll formation
- Catalyzes several other plant reactions

SYMPTOMS

Corn: youngest leaves are yellow, and tips may die

Soybeans: stunted growth; youngest leaves are dark green and/or distorted

RECOMMENDED PRODUCTS

Copper 7.5% | 7.5 Cu

EDTA Copper 7.5% is a clear, clean, pure, and true liquid solution. It can be soil or foliar applied and is designed for use in liquid fertilizers and suspensions.

Soil: 1-2 quarts | Foliar: 1-2 pints

Copper 5% | 2.5 S, 5.0 Cu

Citric chelated copper alleviates plant stress, provides essential micronutrients, and is an important component for the structure of the cell wall.

Foliar: 1-2 quarts



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IPNI | Source: M.K. Sharma and P. Kumar



IPNI | Source: Muthukumar

IRON

ROLES OF IRON

- Acts as an oxygen carrier in nodules of legume roots
- Catalyst to chlorophyll formation

SYMPTOMS

Corn: prominent green veins fade and become light green to pale yellow

Soybeans: interveinal chlorosis on upper leaves; completely yellow leaves indicate severe deficiency

RECOMMENDED PRODUCTS

Iron 4.5% (HEDTA) | 4.5 Fe

Iron 4.5% (HEDTA) is required for chlorophyll formation in plants. It serves as an activator for biochemical processes.

Soil: 1-2 quarts | Foliar: 1-3 pints

Iron 5% | 2.8 S, 5.0 Fe

Iron acts as an oxygen carrier in nodules of legume roots. It is required for the chlorophyll formation inside of the plant.

Foliar: 1-2 quarts



IPNI | Source: M.K. Sharma and P. Kumar



IPNI | Source: N.R. Usherwood

MANGANESE

ROLES OF MANGANESE

- Plays vital role in photosynthesis by aiding in chlorophyll synthesis
- Soybeans and wheat require higher amounts of Mn

SYMPTOMS

Corn: pale green young leaves with pale yellow interveinal chlorosis

Soybeans: stunted plants with interveinal chlorosis

RECOMMENDED PRODUCTS

Eezy™Man | 2.0 S, 5.0 Mn

EezyMan is a proprietary blend of manganese and sulfur. It accelerates maturity and germination and prevents and corrects manganese deficiencies.

Foliar: 1-2 quarts

Manganese 6% | 6.0 Mn

EDTA Manganese 6% is a clear, clean, pure, and true liquid solution. It can be soil or foliar applied and is designed for use in liquid fertilizers and suspensions.

Soil: 1-2 quarts | Foliar: 1-2 pints



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IPNI | Source: Y. Li



IPNI | Source: D. Whitney

ZINC

ROLES OF ZINC

- Availability decreases as soil pH increases
- Aids in synthesis of plant-growth substances and enzyme systems
- Essential for promoting certain metabolic reactions

SYMPTOMS

Corn: white to yellow bands begin at the base of the leaf; midrib and leaf margins remain green

Soybeans: yellow and possibly bronze coloration of leaf edges and tips

RECOMMENDED PRODUCTS

Zinc 9% | 9.0 Zn

EDTA Zinc 9% is a clear, clean, pure, and true liquid solution. It is necessary for protein synthesis and is involved in enzyme systems for growth regulation.

Soil: 1-2 quarts | Foliar: 1-2 pints

Zinc 10% | 2.0 S, 10.0 Zn

Citric Chelated Zinc 10% aids plant growth and enzyme systems. It is necessary for promoting chlorophyll and forming carbohydrates.

Soil: 0.5-4 quarts | Foliar: 1-2 quarts

**CROP
COACH** 

 **nutrient
stewardship**

CROPCOACH AND 4R NUTRIENT STEWARDSHIP

RIGHT SOURCE

Tissue testing allows CropCoach to generate specific, customized product recommendations to ensure you are applying the right product to mitigate deficiencies in your fields.

RIGHT RATE

Use The Andersons products at a rate within the recommended range, which can be found on the product label. Consult a dealer of The Andersons products for specific rate recommendations.

RIGHT TIME

Since nutrient levels depend on many factors, including stage of maturity and environmental conditions, tissue testing helps ensure product recommendations are appropriate at that particular point in time to help correct in-season deficiencies and, ultimately, boost yields.

RIGHT PLACE

For quick, efficient uptake in-season, CropCoach recommends applying liquid fertilizer directly to the crop's leaves through foliar feeding. CropCoach can also be used as a year-round planning tool to create a season-long nutrition program.



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OUR PRODUCT OFFERING

The Andersons has five specialty product lines to meet your needs:

**PUREGRADE®
LIQUID FERTILIZERS**

**MICROSOLUTIONS®
MICRONUTRIENTS**

SELECT NUTRIENTS

**ENHANCED EFFICIENCY
PRODUCTS**

SOIL AMENDMENTS

Defeat nutrient deficiencies with a customized nutrition plan at CropCoach.com

To learn more, contact your dealer or The Andersons

800-831-4815
AndersonsPlantNutrient.com
CropCoach.com



AndersonsPNAg



The Andersons Plant
Nutrient - Agriculture

GET STARTED TODAY AT
CROPCOACH.COM

easily accessible by phone, tablet, and computer

OUR MISSION:

We firmly believe that our Company is a powerful vehicle through which we channel our time, talent, and energy in pursuit of the fundamental goal of serving God by serving others. Through our collective action, we greatly magnify the impact of our individual efforts to:

- Provide extraordinary service to our customers
- Help each other improve
- Support our communities
- Increase the value of our Company



The 
Andersons[®]

And
Beyond

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