

INNOVATION

NEVER STOPS



Innovation Never Stops

Episode 5 Classroom Materials



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Welcome

Get ready to explore how science, technology and creativity are transforming agriculture every day. In this series, you'll learn how Helena Agri-Enterprises helps farmers grow healthier crops, protect the environment and feed the world using tools and ideas that are always evolving. In Episode 5, join us in Idaho as we learn about the region's diverse soils, rising input costs and the need for precision farming to sustain family operations amid industry consolidation. This episode highlights tailored solutions through AGRIntelligence®, soil and tissue sampling and advanced fertilizer and nutritional technologies like Nucleus® Ortho-Phos and Orbix®.

Whether you're curious about ag careers, new farming techniques or how innovation impacts your community, this series will show you that in agriculture, innovation never stops—and neither do the people behind it.

Let's dive in and discover the future of farming together!



Objectives

1. Students will **explore** how soil types and nutrient variability within a region (such as Idaho) influence crop production and management decisions, including the importance of soil and tissue sampling.
2. Students will be **introduced** to starter fertilizers like Nucleus Ortho-Phos, and will learn how they improve early crop growth and nutrient availability in challenging soils.
3. Students will **assess** the significance of long-term partnerships between farmers and agricultural service providers, and how these relationships contribute to implementing conservation practices, improving yields and adapting to industry changes.

Did You know?

1. Idaho's soils vary dramatically—even within five square miles, you can find sandy fields and rich volcanic soils.
2. The Magic Valley region of Idaho is shaped like a giant hourglass, creating unique agronomic challenges with soil variability and excess lime levels ranging from 2% to 14% in the same field.
3. Both featured growers, Jason Montgomery and Justin Gordon, are fourth-generation farmers, with family roots dating back over 100 years.
4. There is a Research and Development Group located in Idaho that tests Helena products year in and year out, giving growers confidence in the product they are getting.
5. Nucleus is manufactured in Idaho, providing product to a multiple state region.

Vocabulary

Bioscience- Study of biological compounds and living organisms to develop sustainable solutions for agriculture and the environment. In agronomy, it helps improve soil and water health and identifies eco-friendly substances that support long-term farm productivity. See Helena Corporate (Plant Nutrition) in Recommended Resources for more.

Crop Contract- Agricultural production contracts are agreements between producers (e.g. farmers) contractors (e.g. ag businesses) for agricultural commodities. These contracts usually identify the production practices to be used, identify the party responsible for supplying the required resources, and specify the quantity, quality and method of payment for the commodity. Farmers and ranchers utilize production contracts as a tool to manage the risks inherent in agricultural production. [Production Contracts Overview – National Agricultural Law Center](#)

ENC® Formulation Technology- ENC Formulation Technology enhances nutrient uptake and plant growth. It also minimizes spray application problems. See Helena Corporate (Formulation Technologies) in Recommended Resources for more.

Fertilizer Manager- The Fertilizer Manager supervises and coordinates the activities of the branch fertilizer operations team including the fertilizer set-up team and the Truck Drivers. This position is also responsible for fertilizer inventory, bulk storage, tank farm operations, blending of liquid and dry fertilizers and delivery and set-up for customers. See Helena Careers in Recommended Resources for more.

Foliar Nutrition- The application of any dissolved mineral nutrient directly to the plant foliage. See Helena Corporate (Crop Nutrition) in Recommended Resources for more. [Foliar nutrition: Potential and challenges under multifaceted agriculture - ScienceDirect](#)

Legumes- Legumes are a diverse family of plants belonging to the Fabaceae (formerly Leguminosae) family, characterized by their ability to fix atmospheric nitrogen through symbiotic associations with nitrogen-fixing bacteria. Common examples of legumes include beans, peas, lentils, chickpeas, soybeans, peanuts and alfalfa. [Legumes - Agriculture Dictionary](#)

Vocabulary

Micronutrient- Essential nutrients required by plants in small quantities for their growth and development. These nutrients play crucial roles in various metabolic processes.

[Micronutrients - Agriculture Dictionary](#)

Nucleus Ortho-Phos- Nucleus Ortho-Phos is a low salt, 8-24-0 starter fertilizer that contains readily available orthophosphate. Enhanced with Nutris Formulation Technology®, Nucleus Ortho-Phos increases nutrient availability to create efficiencies for faster, more uniform emergence and improved plant vigor. See Helena Corporate (Nucleus Ortho-Phos) in Recommended Resources for more.

Nutris Formulation Technology- Nutris Formulation Technology is a customized blend that increases nutrient availability to create efficiencies for faster, more uniform emergence and improved plant vigor. See Helena Corporate (Formulation Technologies) in Recommended Resources for more.

Orbix- Orbix is a high-analysis, ammonia-free nutrient solution of 8-5-3 NPK plus micronutrients containing ENC Formulation Technology and proven, select plant extracts.

Product Manager- The Product Manager is responsible for planning, organizing and managing the business objectives for our commercially branded products to achieve the division's short and long-term goals and overall company strategy. This position is with Helena Products Group (HPG). See Helena Careers in Recommended Resources for more.

R & D (Research and Development)- The R&D Department at Helena Products Group researches and develops new agricultural products or improves existing ones through field testing. Their goal is to meet growers' needs by ensuring product performance and profitability.

Vocabulary

Starter Fertilizer- Starter fertilizer is a specially formulated fertilizer applied at planting to provide essential nutrients to young seedlings during the early stages of growth. This type of fertilizer aims to promote vigorous root development, enhance nutrient uptake, and improve early crop establishment. [Starter Fertilizer - Agriculture Dictionary](#)

Strip-till- Strip-till is an advanced tillage technique that combines elements of conventional tillage and no-till farming. In strip-till systems, narrow strips of soil are tilled or disturbed where crops will be planted, while the remaining soil between the strips is left untilled. This approach minimizes soil disturbance while providing an optimal seedbed for crop establishment. [Strip-Till - Agriculture Dictionary](#)

Discussion Questions

1. Why is understanding soil variability important for crop production, especially in regions like Idaho?

2. Why are contracted crops important for farmers in Idaho? How do they provide stability?

3. What is a starter fertilizer, and what are the benefits of starter fertilizers like Nucleus Ortho-Phos for crops such as beans, sugar beets, etc.?

4. How do foliar nutrition products like Orbix help plants handle stress?

5. What skills and teamwork are needed to bring a new agricultural product from concept to commercialization?

Recommended Resources

Innovation Never Stops Series

[Innovation Never Stops - Helena Agri-Enterprises](#)

Helena Careers

[Helena Agri-Enterprises | Powerhouse of Agronomic Solutions](#)

Helena Corporate

[Helena Agri-Enterprises](#)

AGRIintelligence

[AGRIintelligence - Helena Agri-Enterprises](#)

Crop Nutrition

[Crop Nutrition - Helena Agri-Enterprises](#)

Digital Products

[Digital Products - Helena Agri-Enterprises](#)

Formulation Technologies

[Formulation Technologies - Helena Agri-Enterprises](#)

Nucleus Ortho-Phos

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Orbix

[Orbix - Helena Agri-Enterprises](#)

Plant Nutrition

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