



Lesson 4 of 8

Careers with Plants: Production

Created: 06/2025 by the National FFA Organization

Description of Lesson: *Plant production is at the heart of agriculture, ensuring that crops are grown efficiently, sustainably and at a scale that meets global food demands. In this lesson, students will step into the shoes of different roles involved in plant production to explore the real-world challenges they face.*

Student Learning Objectives:

After completing these activities, students will ...

1. Explore different careers in plant production, including agronomy, greenhouse management and seed production.
2. Apply real-world problem-solving to plant production challenges.
3. Work collaboratively to analyze industry trends and skills needed for plant production careers.

Suggested Grade Level:

Grades 9 and 10 (This lesson is written so instructors can scale up or down based on class needs.)

Suggested Time: 60 minutes (*Time requirements may vary based upon student understanding and class schedule.)

Resources/References:

1. Website: AgExplorer (2023), AgExplorer.FFA.org
2. Website: Syngenta, <https://www.syngenta.com/>

Related Resources:

1. AgExplorer Implementation Guide, <https://FFA.box.com/s/w3o6ep5l2509qtwlfsgrkc7l8o3d143m>
2. Who is Syngenta? <https://FFA.box.com/s/rn1aabyi6ndcils1mptx4ewkijw340j>

Equipment and Supplies Needed:

1. A copy of the "Mission GrowOPs" worksheet for each student
2. A copy of the "[Mission Briefing Cards](#)" cut out ahead of time and put into individual envelopes, one card and envelope per group
3. A copy of the "[Disruption Event Cards](#)" cut out ahead of time, one card per group

Vocabulary:

1. Agronomist
2. Disruption
3. Mission
4. Sustainability

Cross-Curricular Connections:

English/Language Arts	Technology
Research careers and write a letter.	Create a video promoting a career.

SAE and FFA Connections

Name: _____

1. Agronomy CDE, [FFA.org/participate/cdes/agronomy/](https://ffa.org/participate/cdes/agronomy/)
2. Floriculture CDE, [FFA.org/participate/cdes/floriculture/](https://ffa.org/participate/cdes/floriculture/)
3. Nursery/Landscape CDE, [FFA.org/participate/cdes/nursery-landscape/](https://ffa.org/participate/cdes/nursery-landscape/)
4. SAE Idea Cards, <https://ffa.box.com/v/saeideacards>

Student Activity Sheets:

Direct access to student activity sheets without lesson plan or answer key for easy upload to a learning management system or printing for classwork.

<https://ffa.box.com/s/0sbxub06a4wdea74kgzvqvadq3eoulhh> (Word)

<https://ffa.box.com/s/4315wduhj4lg833xxqbbiyx3a8sam6q5> (PDF)

https://docs.google.com/document/d/1_0x_Z-XXEH4rbGIYwMCX5yD7WodxtPyUa6a1_U2_wA/copy (Google)

These Activities Are Aligned to the Following Standards:

FFA Precept

- FFA.PL-A.Action: Assume responsibility and take the necessary steps to achieve the desired results, no matter what the goal or task at hand.
- FFA.PL-C.Vision: Visualize the future and how to get there.
- FFA.PL-E.Awareness: Understand personal vision, mission and goals.
- FFA.PL-F.Continuous Improvement: Accept responsibility for learning and personal growth.
- FFA.PG-I.Professional Growth: Assume responsibility for attaining and improving upon the skills needed for career success.
- FFA.PG-J.Mental Growth: Embrace cognitive and intellectual development relative to reasoning, thinking and coping.
- FFA.CS-M.Communication: Effectively interact with others in personal and professional settings.
- FFA.CS-N.Decision Making: Analyze a situation and execute an appropriate course of action.

AFNR Cluster Skills

- CS.05. Describe career opportunities and means to achieve those opportunities in each of the Agriculture, Food & Natural Resources career pathways.

Common Core – Speaking and Listening

- CCSS.ELA-Literacy.SL.9-10.1 Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
- CCSS.ELA-Literacy.SL.9-10.2 Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.

Common Core – Science & Technical Subjects

- AG5 Describe career opportunities and means to achieve those opportunities in each of the Agriculture, Food & Natural Resources Career Pathways.

AFNR Career Ready Practices

- CRP.04. Communicate clearly, effectively, and with reason. Career-ready individuals communicate thoughts, ideas and action plans with clarity, whether using written, verbal and/or visual methods.
- CRP.07. Employ valid and reliable research strategies. Career-ready individuals are discerning in accepting and using new information to make decisions, change practices or inform strategies.
- CRP.08. Utilize critical thinking to make sense of problems and persevere in solving them. Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem.
- CRP.10. Plan education and career path aligned to personal goals. Career-ready individuals take personal ownership of their own educational and career goals, and they regularly act on a plan to attain these goals.

Partnership for 21st Century Skills

- Communication
- Critical Thinking and Problem Solving
- Initiative and Self-direction
- Leadership and Responsibility

Name: _____

Lesson Plan:

1. **Bell Ringer:** Think about your last meal. List three plant-based ingredients you ate. Where do these plants come from, and who grows them? List this in the table below.

Ingredient	Where does it come from?	Who grows it?

2. **Introduction:** *The food on your plate doesn't appear by magic — there are entire careers dedicated to producing high-quality crops! Today, you'll explore these careers and even solve real-world plant production challenges.*
3. **Activity:** Each student needs a copy of the worksheet "Mission GrowOps."
 - a. **Part 1:** Welcome to Your Mission
Students will be assigned a career role and must work in teams to solve a real-world agricultural challenge using critical thinking, collaboration and problem-solving. Halfway through, they will face a surprise disruption that forces them to adapt.
Teacher Prep:
 - Print and prepare [Mission Envelopes](#).
 - Assign students into small teams (two or three students per team is ideal).
 - Prepare [Disruption Cards](#) for midway through the session.
 - Share Syngenta's website for research: <https://www.syngenta.com/>.**During Activity:**
 - Greet students as "new hires" at Syngenta.
 - Hand out mission envelopes and worksheets.
 - Explain that they must research, plan and strategize like professionals.
 - Halfway through (after about 20 minutes), interrupt with a Disruption Card and explain that they must adjust their strategy.
 - Students continue working to find a final solution after adapting.
 - b. **Part 2:** Synthesis – Job Pitch and Reflection
 - Students transform into recruiters for their assigned careers.
 - Each team prepares a video using the requirements and rubric on their student activity sheets.
 - One extension of this could be to show the videos and have students vote on their favorite.
 - c. **Part 3:** Reflection
 - Students will reflect on what they learned and share their experience as if advising a new Syngenta employee stepping into their role.
 - They should use the prompts and the blank space on their student activity sheets to draft the letter.
4. **Optional – Extended Learning Opportunities (Not factored into time requirement):**
 - a. Have students test seed germination rates using different conditions (e.g., temperature, moisture levels) to connect genetics and environmental factors to plant production.
5. **Exit Ticket:** What was the most difficult challenge your team faced, and how did you overcome it?

Name: _____

Mission GrowOps

Part 1

Directions:

Welcome to your first day at Syngenta! You've just been assigned to an elite team in the plant systems division. Your mission: Solve a real-world agricultural challenge using your expert role and adapt to unexpected disruptions. Your success depends on your problem-solving skills, teamwork and strategic thinking. Join your team, as assigned by your teacher, and complete the mission brief below. Use Syngenta's website (<https://www.syngenta.com/>) to help you with your mission.

Team Members: _____

Career Role: _____

TOP SECRET

Mission Prep: Understanding Your Role

You've opened your mission envelope. It's time to understand your job and the challenge in front of you.

1. What is your team's assigned challenge? (Summarize it in your own words.)
2. What first few steps will your team take to solve this challenge?
3. What two or three unique tools, knowledge or skills from your career will help you?
4. List three risks or unknowns you might need to investigate before making your decision.

Strategy Tracker: Decision Making

Use this section to record your strategy decisions. Think like an expert and justify your choices.

5. What action(s) will your team take to address the problem?
6. Why did your team choose this strategy?
7. What are the possible results of your decision? What could go right or wrong?



Name: _____

Emergency Alert: Industry Disruption!

Halfway through your mission, everything changes. An unexpected industry event has just occurred.

8. What was your team's disruption card?
9. How did your team adjust your strategy to handle the disruption?
10. What new resources or partners did you rely on to solve the issue?
11. What final solution did your team decide on after the disruption?



Name: _____

Part 2

Directions:

Your mission isn't finished yet. Now, your team must create a dynamic 30- to 60-second video to recruit new hires for your assigned career at Syngenta.

Your goal: Convince the next generation that your job is the most exciting, important and vital role in plant production today! You'll combine everything you learned during your GrowOps mission into a short but powerful video pitch.

Mission Objectives

- Summarize what your assigned career does.
- Explain why it matters to agriculture and food production.
- Highlight two or three essential skills or traits needed for success.
- Deliver your message creatively and professionally.

Pitch Video Requirements

- **Length:** 30 to 60 seconds.
- **Tone:** Professional but exciting! (Think Syngenta marketing meets secret mission briefing.)
- **Content Must Include:**
 - Career title clearly stated.
 - One or two sentences describing the career's main role.
 - One reason why this career is essential.
 - Two skills/tools important for the job.
 - One creative "hook" (tagline, slogan, cool fact or challenge statement).

VIDEO RUBRIC

Area	4 Points	3 Points	2 Points	1 Point
Content	All content is accurate. There are no factual errors.	Most of the content is accurate, but there is one piece of information that seems inaccurate.	The content is generally accurate, but one piece of information is clearly inaccurate.	Content is confusing or contains more than one factual error.
Clarity and Creativity	The video is easy to understand, and all elements are clearly written or spoken. Creativity was used.	The video is easy to understand, and most elements are clearly written or spoken. Some creativity was used.	The video is hard to understand with very quiet speaking or very hard to read writing. Little creativity was used.	The video is hard to understand, and one cannot follow the thought process. No creativity was used.
Narration and Preparedness	The video is clearly rehearsed and presented with no mistakes.	One mistake is heard in the video.	Two mistakes are heard in the video.	Three or more mistakes are heard in the video.
Time	Student stayed in the 30- to 60-second time frame.			Student was either under or over the allotted time frame.

Total: _____

Name: _____

Part 3

Directions:

Congratulations, Agent! You have completed your mission.

Imagine you are now a seasoned Syngenta expert. You are writing this letter to welcome a brand-new recruit who will take on the career role you just explored. Share your best advice, insights and lessons learned from your mission.

Write your letter using these guiding questions:

- Describe your career in two or three sentences (what it is, why it matters).
- Share one challenge you faced during the mission and how you handled it.
- Give advice on the most important skill or mindset needed for this career.
- Reflect on why this job is important to agriculture and the world.
- End with encouragement or inspiration!

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KEY: Mission GrowOps

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Answers will vary.

2. What first few steps will your team take to solve this challenge?

Answers will vary.

3. What two or three unique tools, knowledge or skills from your career will help you?

Answers will vary.

4. List three risks or unknowns you might need to investigate before making your decision.

Answers will vary.

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