# STUDENT WORKSHEETS


## WORKSHEET 1: RESEARCH TASK

Group Members:

Choose one of the following leafy green producing regions:

1. California's Central Valley
2. Mediterranean regions of Spain and Italy
3. Yuma, Arizona
4. South China
5. Netherlands' greenhouse production areas
6. Mexico's Baja California
7. Victoria, Australia

| **LEAFY GREEN PRODUCING REGION:** |
|---|
| **1. What are the top 3-5 leafy green crops grown in this region?** |
| |
| **2. Are there any unique or specialty leafy greens specific to this area?** |
| |
| **3. How does this region compare to other regions?** |
| |


## WORKSHEET 1: RESEARCH TASK

| ENVIRONMENTAL CONDITIONS SUPPORTING PRODUCTION |
|---|
| **1. What is the climate like in this region (temperature ranges, rainfall, sunlight)?** |
| |
| **2. What type of soil is predominant in the area?** |
| |
| **3. Are there any natural water sources that support agriculture in the region?** |
| |
| **4. How do seasonal changes affect leafy green production throughout the year?** |
| |


## WORKSHEET 1: RESEARCH TASK

| UNIQUE CHALLENGES |
| --- |
| **1. What are the main pests or diseases that affect leafy green crops in this area?** |
| |
| **2. Are there any environmental challenges like drought, flooding, or extreme temperatures affecting production in the region?** |
| |
| **3. What competition does the region face from other leafy green producing areas?** |
| |
| **4. Are there any labour or workforce issues specific to this region?** |
| |
| **5. How does transportation and distribution of leafy greens impact production in this area?** |
| |


## WORKSHEET 1: HELPFUL RESOURCES

- 5 Must-Grow Leafy Greens: https://www.growveg.com.au/guides/5-must-grow-leafy-greens/
- About the Vegetable Industry: https://ausveg.com.au/resources/economics-statistics/australian-vegetable-production-statistics/
- Agritourism: https://www.visityuma.com/about-yuma/agritourism/
- Critical temperature thresholds: https://www.vegetableclimate.com/wp-content/uploads/2013/11/Critical-temperature-thresholds_Lettuce_V2.pdf
- Everything You Need to Know About How Leafy Green Vegetables Are Grown in California: https://californiagrown.org/blog/leafy-green-vegetables/
- Field Trials - Leafy Greens: https://www.platform10.ag/field-trials-upcoming/field-trials-leafy-greens/
- Hort Innovation: https://www.horticulture.com.au/
- Leaf Vegetables: https://www.tasteatlas.com/leaf-vegetables
- Leafy Greens Market: https://www.marketresearchfuture.com/press-release/leafy-greens-market
- The 13 Healthiest Leafy Green Vegetables: https://www.healthline.com/nutrition/leafy-green-vegetables#bok-choy
- The color of green: Arizona kicks off season: https://www.farmprogress.com/vegetables/the-color-of-green-arizona-kicks-off-season
- Trends in the leafy greens: sustainability, health, and investors: https://www.nunhems.com/se/en/solutions/multileaf/Trend-in-the-leafy-greens
- Utah Leafy Green Production: https://extension.usu.edu/vegetableguide/leafy-greens/
- Vegetable Crop Production Seasons in the Salinas Valley: https://cemonterey.ucanr.edu/files/133480.pdf
- Veggie Stats Lettuce: https://ausveg.com.au/app/uploads/2017/08/Vegetables-Australia-January-February_Veggie-Stats-Lettuce.pdf
- What is missing? | World's most efficient greenhouse agriculture in the Netherlands: https://www.whatismissing.org/content/the-netherlands-most-efficient-greenhouse-agriculture
- Yuma Agriculture Generates $4.4B in State Economic Activity: https://news.arizona.edu/news/yuma-agriculture-generates-44b-state-economic-activity-u-study-finds

Full citations available in references.


# WORKSHEET 2A: THE FUTURE OF FARMING VIDEO

Name:

Watch the *The Future of Farming video*. https://www.youtube.com/watch?v=Qmla9NLFBvU and answer the following questions.

**1. What is the projected world population by 2050?**

**2. The video says, 'farming, used to look like this … Today it looks like this and tomorrow it will look something like this'. Describe how farming looked yesterday, how it looks today and how it might look in the future.**

**3. List some of the technologies that were used on the farms in this video.**


## WORKSHEET 2A: THE FUTURE OF FARMING VIDEO

**4. Which leafy greens have proven profitable in the vertical farming system?**

**5. What is meant by the term 'food miles'?**

**6. What are some of the genetic modifications of crop varieties scientists are currently working on?**

**7. How might the concepts in the video apply to leafy green production?**


## WORKSHEET 2A: THE FUTURE OF FARMING VIDEO

| 8. What are the potential benefits and drawbacks of these innovative approaches? |
| --- |
| |
| **9. How might these technologies address current challenges in leafy green production?** |
| |


# WORKSHEET 2B: 3 DIFFERENT TYPES OF VERTICAL FARMS

Name:

Watch the *3 Different Types of Vertical Farm* https://www.youtube.com/watch?v=suYcri3FzcI video and answer the following questions.

**1. List some of the advantages of verticle farming.**

**2. How are the growing conditions optimised by vertical farming?**

**3. What is the most common commercial system used by large vertical farms?**


## WORKSHEET 2B: 3 DIFFERENT TYPES OF VERTICAL FARMS

**4. How is aquaponics different to hydroponics?**

**5. Explain how aeroponics works.**

**6. What environmental benefits does vertical farming offer for growing leafy greens compared to traditional farming methods, and how can these benefits help address challenges like climate change and resource scarcity?**

**7. How can vertical farming improve access to fresh leafy greens in urban areas, especially in neighborhoods that struggle to find healthy food options?**


# WORKSHEET 3: GROUP PRESENTATION

Group members:

**Stakeholder:** an individual or group with an interest in the industry.

Your group will represent one of the following stakeholders:

- Conventional Farmers
- Organic Farmers
- Environmental Scientists
- Consumers

As a group you need to respond to the following question:

The government is considering new regulations for leafy green production to enhance sustainability. What regulations do you hope are introduced?

**1. Consider your allocated stakeholder: what specific issues do they encounter in producing or sourcing leafy greens?**

**2. Consider your stakeholder: how do market demands and environmental factors influence their decisions?**

**3. What innovative practices or policies could help address these challenges?**

# APPENDIX 1:
# LEAFY GREEN IMAGES

**Kale -** leafy green vegetable that belongs to the cabbage family.

**Iceberg Lettuce** - crisp leaves that grow in a spherical head resembling cabbage.

**Radicchio** - a member of the chicory family, a group of cabbage-like, leafy vegetables that are known for their spicy bitterness.

**Baby Spinach** - the smaller, younger leaves of the flat or smooth leaf spinach variety.

**Cos (Romaine) Lettuce -** a variety of lettuce that is known for its long, narrow leaves and crisp texture.

**Wild Rocket (Arugula)**- an aromatic leaf that is zesty and peppery.

**Mesclun** - a mix of several types of young salad leaves such as arugula, endive, mizuna, radicchio, frisée, and oakleaf lettuce.

**Green Coral Lettuce** - ruffled leaf variety has a mild sweet flavour.

**Red Coral Lettuce** - ruffled leaf variety of lettuce has a mild, earthy taste.

**Green Oak** - has slightly ruffled leaves and a mellow slightly nutty flavour.

**Red Oak** - stunning burgundy leaves, its flavour is slightly sweet.

**Butterleaf (Buttercrunch) Lettuce** - has a delicate, sweet flavour with a smooth and silky texture.

**Red Butter Lettuce** – slightly more earthy and less sweet flavour than the green butter lettuce.

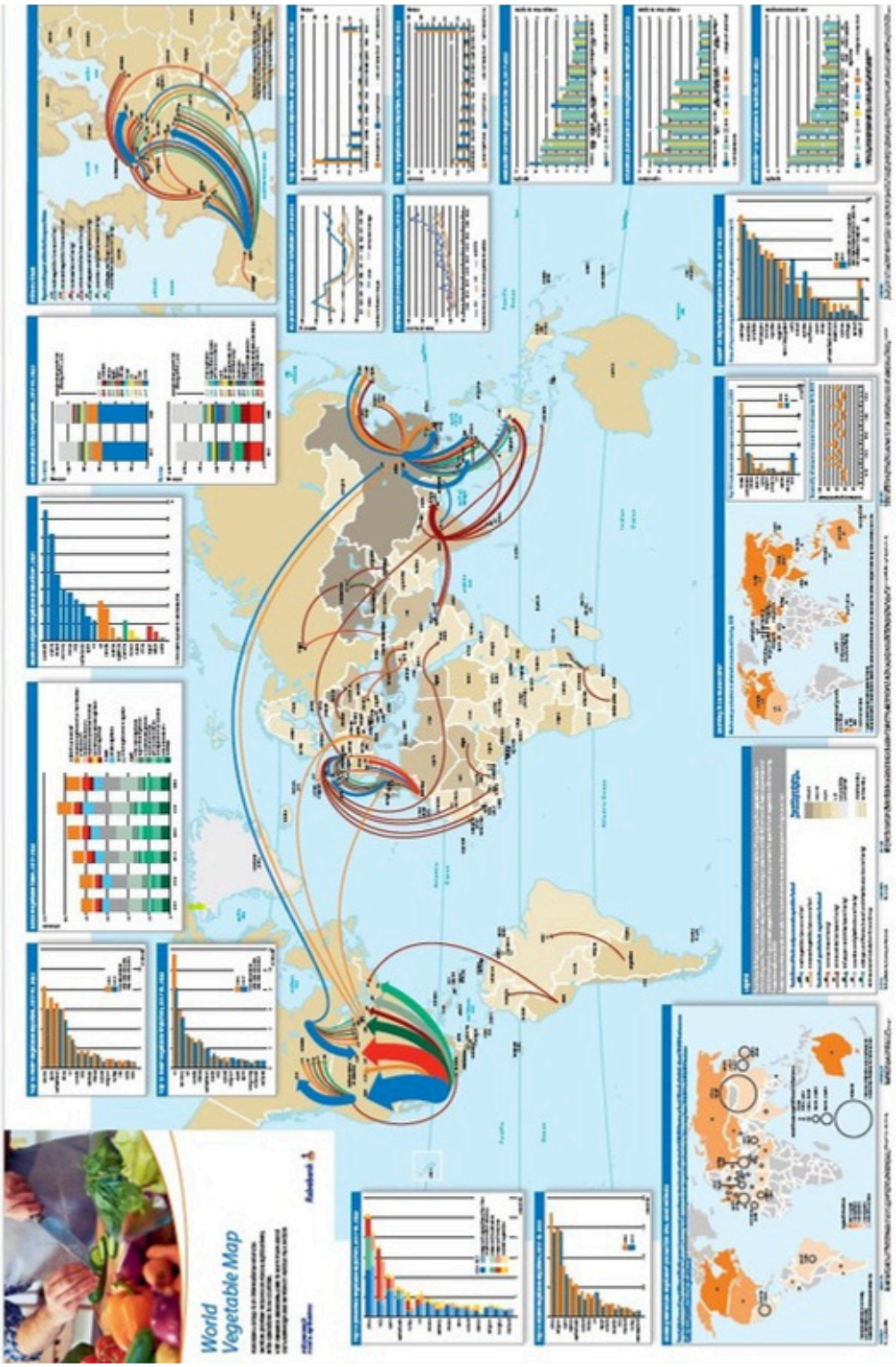
**Little Gem Lettuce –** looks like small-size Cos (Romaine) lettuce. It has a pale, green heart and a crisp center, has a sweeter taste than common lettuce, and never develops a bitter flavour.

**Celery** – belongs to the Apiaceae family and is related to other vegetables like carrots, fennel, and parsley. It has long stalks that are white at the bottom and green at the top, with leaves resembling parsley.

# APPENDIX 2:
# WORLD VEGETABLE MAP

Download a large version of this map at the following link:

https://media.rabobank.com/m/4c297c1328764743/original/Rabobank_World-Vegetable-Map-2024.pdf




World Vegetable Map 2024: Turbulent Times for the Global Vegetable Sector. (Rabobank, 2024)